THE IRON TRADE REVIEW

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GREAT STRENGTH

SHOWN BY RESISTANCE OF SOUTHERN INFLUENCE,

And Pig Iron is Firm—Price of Sheet Bars Advanced—Wage Agreement Signed—Books Opened for Orders for Track Supplies.

The dissolution of the agreement of southern furnace interests and the subsequent decline in the price of southern pig iron have continued to be the principal topics of discussion in trade circles, and the unusual strength of the market in the period preceding mid-summer has been demonstrated by the prevalence of high quotations in the north and the tendency toward still higher prices. Following the abandonment of the agreement, a large amount of southern iron, roughly estimated at 100,000 tons, was sold at from $13 to $13.25 Birmingham for No. 2, but the market was quickly advanced by nearly all sellers to $13.50, and it is difficult to buy below that figure at present. In some northern sections, especially where considerable southern iron is melted, there has been hesitancy on the part of buyers, but the market is in sound condition, and in some places, notably in the Cleveland district, there is a scarcity of both foundry and steel making irons. Although iron can be purchased in the Ironton district at $16, the prevailing price in the valley is $16.50 for No. 2 foundry. We not the sale of 8,200 tons of Bessemer for the last half at $17.75 valley. The new Bessemer plant of the Youngstown Sheet & Tube Co., which will be ready for operation about August 1. will require about 35,000 tons per month, but this tonnage was provided for by an arrangement made with four furnaces about a year ago. Basic has been selling freely at $17, and some interests have disposed of all their product up to Oct. 1.

Will Close for Repairs. Many mills will be closed for repairs during the coming week. On account of the large amount of business on hand, the suspension will be as short as possible. An agreement with the Amalgamated Association has been made by the leading sheet and tin plate interest. Independent interests have not yet signed, as they have not obtained the concession asked for, but it is not anticipated that there will be much difficulty in reaching an agreement.

Sheet Bars Advanced. The scarcity of crude steel continues, and the expected advance of $1 per ton on sheet bars has been announced. It is probable that there will also be an advance on the finished product, although new business at present is not heavy. The contract for cast iron and steel pipe for the new water works system of the city of Philadelphia, aggregating over $1,000,000, has been awarded.

Bar Iron Improved. In spite of reports to the contrary, the market in iron and steel bars is in good condition, and the demand for iron has increased on account of favorable crop reports. Plates have improved in both new contracts and specifications, especially in the Chicago district. The requirements for the two new battleships, on which contracts have been awarded, will be 7,500 tons of plates for each vessel, and 3,000 tons of armor plate.

Track Supplies for Next Year. Mills have opened their books for orders for track supplies for 1907. The Minneapolis, St. Paul & Sault Ste. Marie railroad has ordered 12,500 tons and other heavy business is pending. It is expected that in view of the large tonnage of rails sold for 1907 there will be a correspondingly strong demand for track supplies.

Fence Makers Contract. The demand for wire and wire products continues to be very active. Fence makers and other interests have contracted for 100,000 tons and producers are being pressed for delivery.

Coke Orders Placed The coke market shows improvement and prices are firm. Among the large contracts made for delivery during the last half of the year were those by the Lackawanna Steel Co. for 60,000 tons and by the Cleveland Furnace Co. for its requirements.

WILL ERECT MODEL TOWN.

The erection of a model town on the outskirts of Oakley, near Cincinnati, is planned by four important concerns of that city, which, according to well authenticated reports, are to remove their plants to that place. The project has been veiled in considerable secrecy, but it is understood that the interested parties have closed a deal for the purchase of a tract of about 100 acres, furnishing abundant room for their manufacturing requirements and for an extensive town of cottages for their employes. The corporations reported to be interested in the move are the Cincinnati Milling Machine Co., the Bickford Drill Co., the Triumph Electric Co. and the Cincinnati Planer Co. Every effort will be made to make the new manufacturing town an ideal one from the standpoint of employe as well as employer, and the experiment will be watched with great interest.

Eastern Bar Association.—The meeting of the Eastern Bar Association held at the Waldorf-Astoria last Thursday resulted in no change of prices. The rate remains 1.50c, Pittsburg, although a few minor independent firms seem inclined to shade the official figure. A meeting of the bolt and nut manufacturers held on the same day also resulted in no change.

The Federal Steel Foundry Co. has been formed at Chester, Pa., to manufacture general castings.

THE WEEK IN IRON CENTERS.

PITTSBURG.

Market Strong.—Advance in Sheet Bars.—Hesitancy in Pig Iron.

OFFICE OF *The Iron Trade Review*
521 PARK BUILDING, June 26

When, in the usual course of events and in ordinary times the market should begin to feel the effects of the summer dullness, the beginning of the second quarter of the year being but a few days off, and a quiet period of about two months is expected, the exact opposite is the case at this time. With the single exception of a slight hesitancy on the part of pig iron buyers, due to the sudden break in southern prices, conditions are very good and prices have shown a decided tendency to advance rather than decline.

The next week will be a quiet one in finished lines because of the annual shut-down for repairs and a majority of the leading mills will be off the greater part of the week making the necessary repairs incident to a long run without idleness. The Republic Iron & Steel Co., will close down the greater part of its plants, the steel corporation will close down as many as it can. The American Sheet & Tin Plate Co., will do the same, all taking advantage of the holiday in the middle of the week, and most of them will be out from Saturday of this week until next Sunday night.

With the exception of the independent sheet and tin plate manufacturers, who have been holding off for a reduction in their wage scale, all manufacturers who treat with the Amalgamated Association have signed agreements for the year beginning July 1. As the independent manufacturers are not organized, it is thought they will sign one by one.

The leading interest last week advanced the price of sheet bars $1 per ton to $29, Pittsburg and this is being generally accepted, independent producers having followed in its footsteps. Semi-finished steel is still scarce and this is particularly true of open hearth billets, which are now quoted at $29.

In finished lines there has been an improvement and this is particularly true of plates. The railroad companies are beginning to place car orders for next year and on present contracts the car companies are urging deliveries on their contracts. Two new battleships, on which bids were opened by the government last week, will require close to 20,000 tons of plates and shapes and about 6,000 tons of armor. The American Bridge Co., and independent construction companies have taken on a nice lot of business.

In connection with the construction of the Gary plant of the United States Steel Corporation, the Westinghouse Machine Co., has secured the contract for eight blast furnace gas blowing engines, after the design of those contracted for at the Edgar Thomson plant of the corporation. The new open hearth plant and additional plate mills of the corporation at Homestead are being pushed to completion as rapidly as possible.

Pig Iron.—The break in the southern market has had its influence in the local situation and caused a hesitancy on the part of buyers of foundry iron. From a reliable source it was learned that after the dissolution of the agreement between southern furnaces, about 100,000 tons of southern iron was sold. One of the parties who engineered the transaction made the positive statement that since the break the sales of his company averaged $13.42½ and that this company did not sell below $13.25, Birmingham for No. 2 foundry. Other furnaces, however, made a $3 price and sold considerable iron.

On northern iron the market is firm at $16.25 to $16.50 and one lot of fair tonnage went at $16.55. W. P. Snyder & Co., report the sale of 8,200 tons of Bessemer for last half delivery at $17.75, valley furnace. Basic is firm at $17. Gray forge is quoted $16.35 Pittsburg.

The reports of tremendous sales on long time contracts to the Youngstown Sheet & Tube Co., Youngstown, O., have been greatly exaggerated. This company, which will be in full operation about August 1, will require about 35,000 tons per month, but the greater part of this was covered nearly a year ago on long time contracts with valley furnaces, the contracts calling for a certain percentage of the output of four furnaces on an adjustable scale.

Four valley furnaces will be out for the greater part of the next two months for repairs, two being down at the present time. The Sharpsville Furnace Co., which bought the old stack at Sharpsville, has put it in repair and started June 18, and the output, as announced some time ago, has been sold to the Jones & Laughlin Steel Co.

Bessemer Valley	$17.25 to 17.75
Bessemer, Pittsburg	18.10 to 18.60
No. 1 Foundry, Pittsburg	17.60 to 17.85
No. 2 Foundry, Pittsburg	17.10 to 17.35
Gray Forge, Pittsburg	16.35
Basic, Valley	17.00 to 17.25
Basic, Pittsburg	17.85 to 18.10

Ferro-Manganese. — For prompt shipment the price of ferro-manganese, foreign, 80 per cent, has stiffened materially and $85 is now generally quoted for July shipment.

Skelp.—This market has been very quiet and while the mills are busy on old contracts, new business has been light and prices remain stationary. On narrow widths and light gauges we quote:

Bessemer grooved, 1.57½c to 1.60c; sheared, 1.65c to 1.70c; basic grooved, 1.60c to 1.65c; sheared, 1.65c to 1.70c; iron skelp, grooved, 1.65c to 1.70c; sheared, 1.80c to 1.85c.

Hoops and Bands.—There has been practically nothing doing on new business and conditions are the same as they have been for some time past. We quote:

Hoops, 1.90c in carload lots, and 2c on less than carload lots, bands, 1.50c base, half extras as per standard steel card. Prices f. o. b. Pittsburg.

Muck Bar.—There has been no inquiry and no muck bar has been offered for sale. We quote a nominal price of $29, Pittsburg.

Rails and Track Material.—The inquiry for rails, standard sections for 1907 as well as the last three months of the current year, for which a considerable tonnage may yet be booked, has been good during the week under review and several big deals are pending and will probably be closed before the end of the week. The Minneapolis, St. Paul and Sault Ste. Marie railroad closed for 12,500 tons and the Winona Interurban railway for 4,300 tons. The demand for light rails has been particularly heavy. Railroad spikes are in strong demand at advanced prices. We quote:

Fifty pounds and heavier, 500-ton lots and over, $28; carloads and less than 500 tons, $30; less than carload lots, $32; light rails, 16 pounds, $30; 20 pounds, $28.50; 25 to 45 pounds, $28.50; angle bars for standard sections, 1.50c; spikes, $2.05 to $2.10.

Sheets.—There has been a continued heavy flow of specifications against old contracts, but the strictly new business has not been out of the ordinary. The mills have not been able to make much headway in the direction of catching up on deliveries, but are getting in

slightly better shape. The mills will be closed down in most instances the week of July 4, when needed repairs will be made. We continue to quote:

Black steel sheets, box annealed, cold rolled, one uass: Nos. 11-12, 2c; Nos. 13-14, 2.05c; Nos. 15-16, 2.10c; Nos. 17-21, 2.15c; Nos. 22-24, 2.20c; Nos. 25-26, 2.25c; No. 27, 2.30c; No. 28, 2.40c. Galvanized, Nos. 10-11, 2.35c; Nos. 12-14, 2.45c; Nos. 15-16, 2.55c; Nos. 17-21, 2.70c; Nos. 22-24, 2.85c; Nos. 25-26, 3.05c; No. 27, 3.25c; No. 28, 3.45c. Corrugated roofing, $3.70 per square for No. 28 painted, 2½-inch corrugation; $3.05 per square for No. 28 galvanized, 2½-inch corrugation. Quotations f. o. b. Pittsburg on large lots.

Plates.—The steel car companies have taken on considerable business for next year. The plate market is in better shape now than it has been for several months and for the past three weeks has been steadily improving. It is expected that contracts for the material for the two battleships on which bids were opened last week will be let within a short time and each of these will take about 7,500 tons of plates and structural and about 3,000 tons of armor plate. The demand by the car companies for sheared plates has been very heavy. No further reports have been heard regarding an alleged shading in the price of plates. We quote:

Tank plate ¼ inch thick, 6¼ to 100 inches, 1.60 f. o. b. mill, Pittsburg. Extras are as follows per 100 pounds, boiler and flange steel plates, 0.10c; A. B. M. A. and ordinary firebox steel plates, 0.20c; still bottom steel, 0.30c; marine steel, 0.40c; locomotive firebox steel, 0.50c; all sketches excepting straight taper plates, varying not more than four inches, in width at ends, narrowest end not being less than 30 inches, 0.10c; complete circles, 0.20c. Plates in width over 100 inches up to 110 inches, 0.05c; over 110 inches up to 115 inches, 0.10c; over 115 inches up to 120 inches, 0.15c; over 120 inches up to 125 inches, 0.25c; over 125 inches up to 130 inches, 0.50c; over 130 inches, 1.00c. Gauges under ¼ inch to and including 3-16 inch plates on thin edges, 0.10c; under 3-16 inch to and including No. 8, 0.15c; under No. 8 and including No. 9, 0.25c. Five cents extra for less than carloads. Terms net cash in 30 days.

Structural Material.—The American Bridge Co. and the independent construction companies have closed for several good sized structures but on account of labor troubles are withholding announcements. The demand for structural material, particularly heavy sections, is brisk. We quote:

Beams and channels, 15 in., and under, 1.70c; over 15 in., 1.80c; zees, 1.70c; tees, 1.75c; angles from three to six inches, inclusive, 1.70c; over six inches, 1.80c; universal and sheared plates, 6¼ inches and wider, 1.60c base.

Merchant Pipe.—The ordinary run of business still holds good and the demand is seasonable and prices have not changed. There have been several inquiries out for line pipe, but they have not reached the stage where anything can be said about them. The extreme discount is 81 per cent and five off. We quote the official discounts on pipe, consumers' carloads, with jobbers' discounts one point higher:

	Steel		Iron	
Consumer's Carloads	Black	Galv.	Black	Galv.
⅛ and ¼ inch	71	55	67½	51½
⅜ inch	73	59	69½	55½
½ inch	75	63	71½	59½
⅝ to 6 inches	79	69	76	66
7 to 12 inches	74	59	71	55½
EXTRA STRONG PLAIN ENDS.				
⅛ to ⅜ inch	64	52	60½	48½
½ to 4 inches	71	59	67½	55½
4½ to 8 inches	67	55	63½	51½
Double extra strong plain ends, ⅛ to 8 inches	60	49	56½	45½

Boiler Tubes.—The demand and inquiry continues and locomotive boiler tubes are in very good demand. We quote:

	Steel	Iron
1 to 1¼ inches	50	45
1¾ to 2¼ inches	62	45
2½ inches	64	50
2¾ to 5 inches	70	57
6 to 13 inches	62	45

Less than carload lots two points less.
2½ inches and smaller, over 18 feet, 10 per cent net extra.
2¾ inches and larger, over 22 feet, 10 per cent net extra.

Tin Plate.—New business has been light, for the reason that practically all the contracts for tin plate have been made and old contracts will not expire before August. Specifications against old contracts are very heavy and the demand for deliveries urgent. The American Sheet & Tin Plate Co., has signed the scale with the Amalgamated Association for the same mills operated under the union agreement last year, but the independent interests have not signed up, the Amalgamated Association refusing to grant the 12½ per cent reduction asked by the independents.

We quote: $3.75 per base box, f. o. b. Pittsburg, 14 x 20 100-pound cokes, terms 30 days, less two per cent off for cash in ten days.

Wire and Wire Nails.—For this time of the year business is particularly good and, with the annual shut down for repairs but a week away, the mills are busy complying with specifications and endeavoring to make stock to carry them over. Already considerable business has been placed for the last half of the year. Prices remain unchanged as follows:

Wire nails, jobbers' carload lots, $1.85; retailers' carload lots, $1.90, and less than carload lots, $2; painted barb wire, $2 for jobbers in carloads; retailers in carloads, $2.05, and less than carloads, $2.15, with 30c for galvanizing, plain wire, $1.70 to jobbers and $1.75 by carload.

Steel. — Bessemer and open-hearth billets are scarce and the large producers are not in the market for new business. Bessemer billets, 4 x 4 are quoted $27 to $27.50 and open-hearth at $28.50 to $29. The $29 price established by the leading interest on sheet bars at the quarterly adjustment last week is being accepted and business is being placed for requirements for July and the first quarter. Independent producers of sheet bars have advanced their prices to meet those of the leading interest.

Merchant Bars.—Bar iron, which has been very quiet for about two months past, has improved and considerable business has been done during the week under review. The tonnage was in no way big but the fact that there has been considerable buying is a great contrast. We continue to quote, unchanged, as follows:

Common iron bars, 1.55c, Pittsburg, in carload lots, 1.60c in less than carloads; for western shipment 1.50c base Pittsburg; Bessemer steel bars, 1.50c; plow and cultivator, 1.50c net; channels, angles, zees and tees, under three inches, 1.60c, all f. o. b. Pittsburg. The following differentials are maintained on steel: Less than 2,000 pounds, 0.10c advance; less than 1,000 pounds, of a size, 0.30c advance.

Steel Bars.—While the aggregate tonnage has not been large there has been considerable new business on steel bars and this at the 1.50c base price, notwithstanding the reports that this price has been shaded $2 per ton. The fact that 1.50c has been secured by the leading producers on new business makes the cut look doubtful and it is emphatically denied by those in a position to know what is going on.

Coke.—During the past week the Lackawanna Steel Co., has bought 60,000 tons of furnace coke for last half delivery and the Cleveland Furnace Co., has closed for its requirements for a similar period. Several eastern furnaces have been in the market for Connellsville coke, on account of the Clearfield and Mountain ovens not operating fully since the strike. A good tonnage of low phosphorus and low sulphur coke has been closed. On furnace coke we quote $2.40 to $2.50 for prompt shipment and $2.65 to $2.80 on foundry. The estimated output of the Connellsville region for the week ending June 16 was 272,311 tons and for

the lower Connellsville region 104,379 tons.

Old Material.—An uncertainty as to whether the steel corporation is going to make further purchases of heavy melting has kept dealers guessing and as a result there have been but few transactions. We quote as follows, delivered, Pittsburg district:

We quote, gross tons, delivered: Heavy melting stock, $15; No. 1 cast scrap, $15 to $15.50; cast borings, $8.50 to $9; bundled sheet scrap $13.50; No. 1 railroad wrought, $17; low phosphorus scrap, $18 to $18.50; wrought turnings, $11 to $11.50; bushheling scrap, $14 to $14.50; iron axles, $25.50 to $26; old steel rails, rerollers, $15.50 to $15.75.

CHICAGO.

Dissolution of Southern Agreement Has Depressing Effect.

Office of *The Iron Trade Review*, 1362 Monadnock Block, June 26.

The sharp cut in southern prices is the principal topic in the local market. Being the result of a disagreement between the two principal Birmingham interests, on the reported question of establishing separate schedules for the east and west, with a difference of 50 cents a ton in favor of the former, its effect was entirely confined to foundry irons. Finished products are so strongly intrenched that they did not feel the shock. Following the announcement of the cut, inquiries for iron came thick and fast, but only a few got in on the $13 basis. The majority of foundrymen preferred to wait for developments, but in the meantime prices were moved up 50 cents a ton. Rail manufacturers opened their books this week for track supplies for next year's delivery, and are booking contracts on the basis of 2c for spikes, 2.50c for bolts and 1.50c for angle bars. A large demand is expected in view of the heavy tonnage of rails booked for 1907, and the tightly sold condition of all manufacturers of these products for this year. New business in standard sections aggregates 10,000 tons, all of which was transferred to the Carnegie Steel Co. Light rails were advanced $1 a ton, placing 12-lb. sections on the basis of $32 f. o. b. mill. An advance of $1 a ton is also announced in sheet bars, from $28 to $29, to become effective July 1. Trading in iron and steel bars continues good, and prices of both products remain firm at 1.50c Pittsburg. No movement is noted in scrap, values being inclined to lower levels.

Pig Iron.—It is a paradoxical situation in pig iron. Bear talk and feeling are uppermost in the face of strong bullish conditions. Buying has almost entirely subsided and is expected to remain at low ebb until the market has recovered from the shock of last week. In the meantime, leading sellers are declining business offered them at $13 Birmingham for No. 2 foundry, stating they do not want any more of that kind of tonnage, although several good sized contracts were booked last week on this basis. Some small tonnage has since been taken at $13.25, but practically nothing at $13.50, as buyers refuse to entertain this price. Contrary to expectations, northern irons have not suffered by the startling change in southern conditions, and $18 Chicago remains the minimum quotation on local No. 2 foundry. Very little of the product of western stacks is on the market just now. The Zenith and Mayville furnaces will shortly go on Bessemer, the Thomas furnace is out of blast, and the two Iroquois stacks are comfortably filled for the greater part of the remaining months of the year. Lake Superior charcoal is also firm at $19 Chicago. Our prices are as follows:

Lake Superior charcoal	$19.00
Northern Foundry No. 1	18.50
Northern Foundry No. 2	18.00
Northern Foundry No. 3	17.50
Northern Scotch Foundry	18.75
Ohio Strong Softeners No. 1	18.80
Ohio Strong Softeners No. 2	18.30
Southern Foundry No. 1	17.40 to 17.65
Southern Foundry No. 2	16.90 to 17.15
Southern Foundry No. 3	16.40 to 16.65
Southern Foundry No. 4	15.90 to 16.15
Southern No. 1 Soft	17.40 to 17.65
Southern No. 2 Soft	16.90 to 17.15
Southern Gray Forge	15.40 to 15.65
Southern Mottled	15.15 to 15.40
Southern Silveries (4 percent to 6 percent Silicon)	17.90 to 18.40
Jackson Co. Silveries, 8 to 10 percent Silicon	23.30
Alabama and Georgia Car Wheel	23.90 to 24.40
Malleable Bessemer	18.00 to 18.25
Standard Bessemer	19.30
Basic Iron	18.85

Billets.—Effective July 1, the Carnegie Steel Co. announces an advance of $1 a ton in sheet bars, raising that product from $28 to $29. Other intermediate steel products are equally as firm, and sellers can get almost any price within reason for quick delivery. Wire rods are $36 Chicago, and forging billets $36, both being very scarce.

Iron and Steel Bars.—An improved tone is noted in bar iron, being the result of a hopeful crop outlook. Buyers are coming into the market for the last half and placing liberal contracts with mills, anticipating this fall and winter a demand for their finished machinery equal in strength to that which was experienced in the first half of the year. Contracting for steel bars is also of good proportions, and specifications are very heavy. Both products are firm on the basis of 1.50c Pittsburg. We quote carload lots, mill shipments, Chicago delivery, as follows: Bar iron, 1.66½c; soft steel bars and bands, 1.66½c, half extra; soft steel angles, less than 3 x 3, 1.76½; hoops, 2.06½c base, full extras; old rail stock, 1.65½c Jobbers report a good demand from stock, with prices firm. We quote bar iron, 2.10c, full extras; soft steel rounds and squares, 3 inches and larger, $2 per 100 pounds base; flats, 2 inches to 4 inches by 1⅛-inch and larger, $2 per 100 pounds base; flats, 2 inches to 4 inches by 1⅛-inch and larger, $2 per 100 pounds base; flats, 4½ inches x 5 inches and 6 inches x 5-16 inch and thicker, $2 per 100 pounds base; all ovals, half rounds, $2 per 100 pounds base; steel bands, $1.85 to $1.95 half extras; soft steel hoops, $2.30 to $2.40 full extras. Other sizes not mentioned above, $1.85 per 100 pounds base, plus half extras.

Sheets.—The sheet market has been further strengthened by the announcement that an advance in sheet bars of $1 a ton will go into effect July 1. This will doubtless be followed shortly afterward with an equal advance in the finished product. Both black and galvanized sheets are very strong. No diminution is noted in the tonnage coming forward and the best deliveries that can be given are six to eight weeks on black sheets and eight to twelve on galvanized. Jobbers are experiencing the same trouble in replenishing their stocks as consumers, and in consequence are holding their store prices very firmly. We quote mill shipments, Chicago delivery, as follows:

Nos. 8, 9 and 10, 1.96½c; Nos. 11 and 12, 2.01½c; Nos. 13 and 14, 2.06½c; Nos. 15 and 16, 2.16½c, box annealed; Nos. 18 and 20, 2.36½c; Nos. 22 and 24, 2.46½c; No. 26, 2.51½c; No. 27, 2.56½c; No. 28, 2.66½c; No. 29, 2.81½c; No. 30, 2.91½c. Jobbers' prices on less than carload lots from store are as follows: No. 10, 2.20c; No. 12, 2.25c; No. 14, 2.30c; No. 16, 2.40c; Nos. 18 and 20, 2.65c; Nos. 22 and 24, 2.70c; No. 26, 2.75c; No. 27, 2.80c; No. 28, 2.85c; No. 30, 3.30c.

Galvanized sheets, mill shipments, are as follows: Nos. 10 and 11, 2.56½c to 2.61½c; Nos. 17 and 21, 2.91½c to 2.96½c; Nos. 22 and 24, 3.06½c to 3.11½c; Nos. 25 and 26, 3.26½c to 3.31½c; No. 27, 3.46½c to 3.51½c; No. 28, 3.71½c to 3.76½c; No. 29, 3.91½c to 3.96½c; No. 30, 4.16½c to 4.21½c. From store, prices on less than carload lots are as follows: Nos. 10 to 20, 3.10c to 3.20c; Nos 22 and 24, 3.25c to 3.35c; No. 26, 3.45c to 3.55c; No. 27, 3.65c to 3.75c; No. 28, 3.85c to 3.95c; No. 30, 5.05c to 5.15c.

Plates.—The local market seems to have completely dropped its former lethargic condition, and plates are now as active as any material on the list. New business is offered the mills in good volume, and specifications are also coming forward in a gratifying manner. Store trade is active, and mill and jobbers' prices are firm. We quote mill prices, Chicago delivery, as follows:

Tank steel, ¼-inch and heavier, up to 100 inches wide, 1.76½c base; flange steel, 1.86½c base; marine steel, 1.96½c

base; all full extras. Plates 3-16 inch thick, $2 extra; gauges, 7 to 8, $3 extra; No. 9, $5 extra. Less than carload lots, $5 extra. We quote from local stocks: tank steel ¼ inch and heavier, up to 72 inches wide, 2c to 2.10c; 72 inches to 96 inches wide, 2.10c to 2.20c; 3-16 inch up to and including 60 inches wide, 2.10c to 2.20c; 3-16 inch 72 inches wide, 2.35c to 2.45c; No. 8, up to 60 inches wide, 2.15c to 2.25c; flange steel, 25c extra; heads, 25c extra.

Structural Steel.—The new tonnage closed in the week under review is light, and practically all for small jobs. The South Chicago structural mill is running easy and most satisfactory deliveries can now be obtained from it. Jobbers, however, are not sharing in the dullness that producers are experiencing, one and all reporting a very stiff demand for all sizes and shapes. Prices are very firm, mill shipments, Chicago delivery, being quoted as follows:

Beams and channels, 3 to 15 inches, inclusive, 1.86½c; angles, 3 to 6 inches, 1.86½c; angles, larger than 6 inches, on one or both legs, 1.96½c; beams, larger than 15 inches, 1.96½c; zees, 3 inches and over, 1.86½c; tees, 3 inches and over, 1.91½c, with the usual extras for cutting to exact lengths, punching, coping, bending, or other shop work.

Quotations on lots from store are as follows: All angles three inches and larger, including six inches, $2.25 per 100 pounds base; angles over six inches, $2.35 per 100 pounds base; tees, three inches and larger, $2.30 per 100 pounds base; beams, three inches to fifteen inches, inclusive, $2.25 per 100 pounds base; beams, eighteen inches and larger, $2.35 per 100 pounds base; channels, three inches and larger, $2.25 per 100 pounds base.

Rails and Track Supplies.—Rail mills have opened their books for contracts for track supplies for next year's delivery. For this shipment, angle bars remain at 1.50c as before, spikes at 2c and track bolts at 2.50c, f. o. b. mill. For delivery in 1906, however, the market is much firmer, and higher prices are easily obtained on either product. Light rails have also advanced $1 a ton, 12-pound sections being now quoted at a minimum of $32. A number of small orders, aggregating 10,000 tons, for standard sections were booked by the Carnegie Steel Co. in this territory last week. We have revised our prices, and quote standard sections, f. o. b. mill, open-hearth rails, $29; Bessemer, $28; light rails, Bessemer steel, 30 to 45-pound sections, $28; 25-pound, $29; 20-pound, $30; 16-pound, $31; 12-pound, $32; and lighter sections down to eight pounds, $29 to $41, all f. o. b. mill. Track supplies are quoted as follows: Angle bars, 1.50c to 1.75c; spikes (for quick shipment) 2.15c to 2.25c; for forward deliveries, 2c; track bolts (for quick shipment) 2.65c to 2.75c base; square nuts (for forward deliveries) 2.50c.

Cast Iron Pipe.—The routine of small orders keeps up and aggregate a tonnage of satisfactory proportions, but nothing of a large nature has been taken since our last report. Prices are firm at the new schedule announced last week, which is as follows: Four-inch water pipe, $32.50; six and eight-inch pipe, $31; 10-inch and larger, $30; gas pipe, $1 extra.

Boiler Tubes.—Local sellers are holding stiffly to printed schedules, though business is not active. In some quarters, shading is reported, but this cannot be verified. We quote as follows:

	Steel	Iron	Seamless
1 to 1¼ inches	46.35	43.35	53.35
1½ to 2¼ inches	58.35	43.35	40.35
2½ inches	60.35	48.35	43.35
2¾ to 3 inches	68.35	55.35	
2¾ to 4½ inches (Seamless)			50.85
6 to 13 inches	58.35	43.35	

Less than carload lots, from store, as follows:

	Steel	Iron	Seamless Steel
1 to 1¼ inches inclusive	40	35	42½
1½ to 2¼ inches, inclusive	50	35	35
2½ inches, inclusive	52½	35	30
2¾ to 5 inches, inclusive	60	47½	42½

Merchant Pipe.—A let-up is noticed in new business and specifications, attributed by mills to the midsummer dullness, which is very apparent just now. Prices are firm and without change, the leading interest quoting ¾ to 6-inch black steel pipe, 79.35 per cent discount from list Chicago. Galvanized is offered at 69.35 discount Chicago. Quotations of local jobbers are without change, ¾ to 6-inch black steel pipe being quoted at 76 to 77 per cent discount.

Wire Products.—Demand for smooth wire is extraordinarily heavy. In the last two weeks fence manufacturers and other kindred interests have contracted heavily for their requirements in the last half, and substantially 100,000 tons have been placed with mills. For nails and the other forms of finished product, buying is not so active though it remains large enough to take practically the entire output of western mills. No stocks have been accumulated, and it is doubtful if any will be piled this year. We quote prices as follows:

Wire nails, $2; painted barbed wire, $2.15; galvanized barbed wire, $2.45; smooth annealed wire, $1.85; smooth galvanized wire, $2.15; polished staples, $2.15; galvanized staples, $2.40. Carload lots to retailers, 5 cents higher than above prices; less than carload lots, 15 cents higher.

Coke.—Prices show no disposition to decline, and the market is fairly active. Connellsville 72-hour brands are quoted from $2.75 to $2.90 ovens, or $5.40 to $5.55 Chicago. Wise county coke is offered at $4.85 to $5 Chicago, and Solvay coke at $5.50 on contracts, and $5.65 for immediate shipment.

Old Material.—The week has been marked with dullness, and fluctuations, although small, have tended downward. The only railroad list of importance issued this week is that of the C. B. & Q., which aggregates 2,700 tons. We quote as follows, gross tons being mentioned in the first paragraph:

Old Steel Rails (4 feet and over)	$15.50 to 16.00
Old Steel Rails (less than 4 feet)	14.00 to 14.50
Old Car Wheels	18.00 to 18.25
Old Iron Rails	20.50 to 21.00
Relaying Rails, subject to inspection	27.00 to 27.50
Heavy Melting Steel	13.00 to 13.50
Mixed Country Steel	11.00 to 11.50

We quote net tons, as follows:

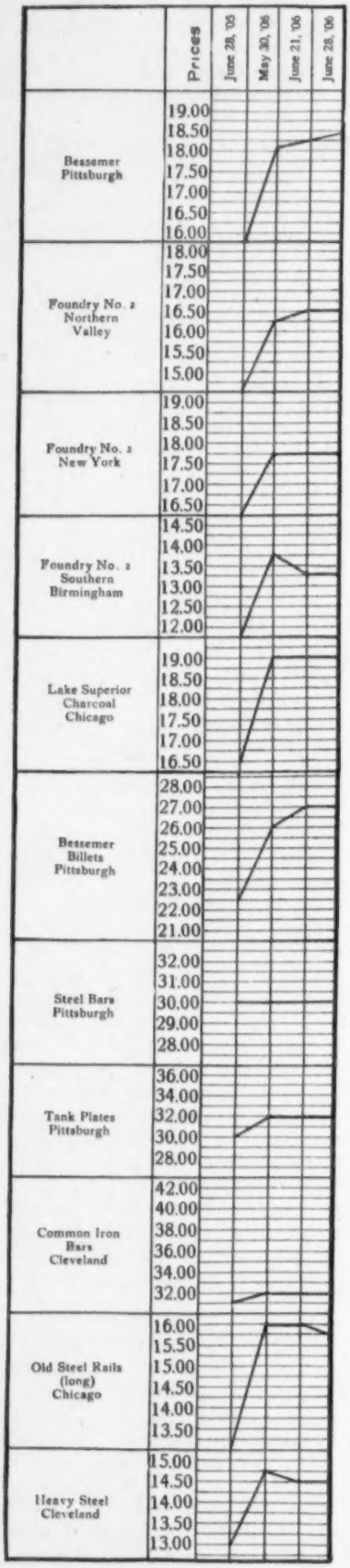
No. 1 R. R. Wrought	$13.25 to 13.50
No. 2 R. R. Wrought	12.25 to 12.50
Shafting	15.75 to 16.00
Dealers' Forge No. 1	11.25 to 11.50
Wrought Pipe and Flues	9.25 to 9.50
No. 1 Cast, 150 pounds and less	13.00 to 13.50
No. 1 Mill	8.25 to 8.50
Mixed Busheling (No. 1 & No. 2)	8.50 to 9.00
Country Sheet	7.25 to 7.50
No. 1 Boilers Cut	9.25 to 9.50
Boiler Punchings	11.00 to 11.50
Iron Car Axles	22.50 to 23.00
Steel Car Axles	17.50 to 18.00
Iron Axle Turnings	9.25 to 9.50
Cast Borings	7.00 to 7.50
Mixed Borings, etc.	7.00 to 7.50
Machine Shop Turnings	9.00 to 9.25
Railroad Malleable	12.50 to 13.00
Agricultural Malleable	12.50 to 13.00
Stove Plate and Light Cast Scrap	10.50 to 11.00
Old Iron Splice Bars	16.00 to 16.50

Old Company to Dissolve.—The Iron Mountain Co., a $3,600,000 corporation, which has netted profits of $7,000,000, is shortly to be dissolved. The assets, about $275,000, will be distributed among the stockholders, who are chiefly residents of St. Louis. The concern was organized 40 years ago when a great supply of iron ore was discovered near that city. The discovery created a sensation throughout the country and caused to be constructed the Iron Mountain railroad, the great system which transported thousands of tons of the mineral to market. Among the original incorporators were James Harrison, Jules Valle, Charles P. Choteau, Henry Belin, Julia Maffitt, Felix Valle and men who are remembered among the wealthiest citizens of Missouri. James Harrison was the first president of the concern.

The A. R. Le Blond Co., Cincinnati, has taken out a permit for a three-story addition to its tool plant. The structure will be of concrete, brick and steel and will cost about $10,000.

More metal and machinery is purchased in the United States by Canada than any other country in the world.

PRICE CHART.



CLEVELAND.

Greater Strength of Foundry Iron.—Basic Selling Freely.

OFFICE OF *The Iron Trade Review*,
BROWNING BUILDING, June, 28.

Iron Ore.—Ore interests report frequent calls from furnaces which find they have not bought heavily enough to cover the unusually large requirements of the present season, or which are seeking to change their mixtures. Although there is practically no ore to be had, some relief is being afforded them, and the situation has been materially relieved during the last few weeks by the large number of furnaces out of blast in this district. The movement of ore continues to increase and July and August should see at least 12,000,000 tons brought down. Prices are unchanged on the basis of $4.25 Old Range Bessemer.

Pig Iron.—The improvement noted a week ago in foundry iron has continued to such an extent as to amount to a reversal of conditions prevailing a month ago. One local interest, which has its output sold for several months, is declining all business below $17.50 furnace for No. 2 foundry, another is holding firm at $17.00 local furnace, and still another reports a number of sales of small lots as high as $17 and $17.25 northern valley. The market, however, is below that figure, and is exceedingly firm at $16.50 northern valley. The situation in the Cleveland district in foundry iron, which for some time has been the weakest feature of the industry, has become remarkably strong. Sales agents have been called in and furnaces are not seeking takers for their remaining 1906 tonnages. Foundries are melting at an extraordinary rate and are seeking anticipated deliveries. Shipments from make are relieving their immediate needs, though several instances have come to light of late of foundries being forced to close for a few days on account of inability to get iron. Basic is selling freely at $17, lots of 3,000 and 5,000 tons for third quarter delivery, and another of 5,000 tons for fourth quarter being closed during the week. One local interest is sold up until October. It is expected that the corporation will take the balance available for the third quarter, which is very small. In Bessemer the situation is unchanged, the price being $17.25 furnace, except for small lots which bring 25 cents a ton more. The tonnage yet unclosed for the third quarter is insignificant. Considerable contracting is being done in coke at $2.50 to $2.60 for furnace, and $2.75 to $3 for foundry at the oven. We quote, Cleveland delivery, as follows:

Bessemer	$18.10 to 18.35
No. 1 Foundry	17.25 to 17.75
No. 2 Foundry	17.00 to 17.50
No. 3 Foundry	16.50 to 16.75
No. 2 Southern	17.85 to 18.10
Gray Forge	16.35 to 16.85
Gray Forge Southern	15.85 to 16.25
Lake Superior charcoal	19.50 to 20.00

Finished Materials.—The usual run of mid-year contracts is being closed, invariably, it is stated, for larger tonnages than a year ago. This is especially true in the case of implement makers, who see the assurance of increasing business in favorable crop report. A good business in iron bars is reported and the local output will be considerably increased after July 15, when the new mill of the Empire Rolling Mill Co. will begin operation. Plates and shapes are comparatively easy, though a fair tonnage of sales is reported by jobbing interests. Forging billets are not selling readily as quotations are too high for working up at a profit. Sheet deliveries are still further delayed. Several sales of light rails have been made and there is considerable inquiry on standard sections.

Old Materials.—The local situation is unchanged, and business is practically at a standstill, except for the usual run of trading among dealers. We quote f. o. b. Cleveland, gross tons, as follows:

Old iron rails	$20.00 to 21.00
Old steel rails (over 6 feet)	16.50 to 17.00
Old steel rails (under 6 feet)	16.00 to 16.50
Old car wheels	16.50 to 16.75
Steel boiler plate	12.00 to 13.00
Steel axles	19.00 to 20.00
Malleable iron (railroad)	15.00 to 15.50
Malleable iron (agricultural)	13.00 to 13.50
Heavy steel	14.50 to 15.00
Country mixed steel	13.00 to 13.50
No. 1 R. R. wrought	15.50 to 16.00
No. 1 busheling	12.00 to 12.50
No. 1 machine cast	13.50 to 14.00
Iron axles	22.00 to 23.00
Axle turnings	10.50 to 11.00
Wrought turnings (free from cast)	9.00 to 9.50
Grate bars	10.00 to 10.50
Pipes and flues	11.50 to 12.00
Tank iron	10.50 to 11.00
Hoop and band iron	7.50 to 8.00
Sheet iron	6.50 to 7.00
Wrought drillings	9.00 to 9.50
Stove plate	10.00 to 10.50
Cast borings	7.00 to 7.50

CINCINNATI.

Following the Recent Decline in Pig Iron, Prices are Firmer.

June 26.

Pig Iron.—The reduction in the price of southern iron which occurred last week resulted in the placing of quite a large tonnage in the aggregate at $13.00 Birmingham basis. It also had the effect of causing a number of prospective buyers to defer placing their contracts and the market is considerably unsettled. One of the largest producers in the south is still quoting iron at $13.00 Birmingham and some of the smaller furnaces have followed this price basis, but at this writing the tendency of the smaller furnaces is to stand for $13.50 Birmingham. There is no pronounced policy shown by

buyers and while some are holding off, others have believed that the present break in prices was an opportune time to place orders for third quarter requirements.

The trade places but little credence in the stock jobbing stories that are being printed and believes that southern producers decided to meet northern iron prices in competitive territory. It seems also quite probable that northern furnaces have taken a good deal of business that usually goes to the south and that a number of small buyers have covered their wants for the third quarter with northern iron. Careful inquiry indicates that many large buyers have not covered for the third and fourth quarters as yet so far as this territory is concerned.

At the close of the week northern iron was stronger than at the close a week ago. Reports were quite uniform that $16.00 at southern Ohio furnace was minimum and that some makers were advancing prices. Malleable iron was also quoted steadier. There was quite a good inquiry but what would result from prices quoted on them remains in doubt. The situation will no doubt be clearer next week. We quote f. o. b. Cincinnati as follows:

Southern Foundry No. 1	$16.50 to 17.00
Southern Foundry No. 2	16.00 to 16.50
Southern Foundry No. 3	15.50 to 16.00
Southern Foundry No. 4	15.00 to 15.50
Southern Foundry No. 1, soft	16.50 to 17.00
Southern Foundry No. 2, soft	16.00 to 16.50
Gray Forge	14.50 to 14.75
Northern Foundry No. 1	17.65 to 17.90
Northern Foundry No. 2	17.15 to 17.40
Northern Foundry No. 3	16.65 to 16.90
Jackson County Silvery, 8 per cent	21.15 to 21.65
Southern Charcoal	24.00 to 25.00

Coke.—Foundries are showing considerable interest in their second half of the year wants. Considerable contracting has been done and many inquiries are pending. Prices are rather steady and many coke operators are holding firm views, especially on well known brands. We quote prices in the leading coke producing districts as follows:

Wise County, Va. Furnace Coke prompt shipment	$2.50 per ton
Wise County, Va. Foundry Coke on contracts	$2.65 to 2.75 per ton
Pocahontas Furnace Coke prompt shipment	$2.25 to 2.50 per ton
Pocahontas Foundry Coke on contracts	2.65 to 2.75 per ton
Connellsville Furnace Coke prompt shipment	2.50 per ton
Connellsville Foundry Coke on contracts	2.65 to 3.00 per ton
New River Foundry Coke on contracts	2.65 to 2.75 per ton
New River Furnace Coke, prompt shipment	2.50 per ton

†Wise County, Va., Coke on Furnace contracts is sold mainly on a sliding scale basis for pig iron prices on the following basis: $1.65 per ton on $9.00 pig iron, plus 17 per cent of the advance on pig iron above $9.00 Birmingham

Finished Material. — The demand from the jobbers' standpoint continues good and quick delivery on structural shapes still brings premium prices. The general market shows no important change.

We quote: Bars at 1.63c, half extras, with dealers quoting 1.85c for iron and steel out of store. Galvanized sheets, No. 10 and No. 12, in car lots are 2.68c. We quote black sheets, No. 27 at 2.40c in car lots of 500 bundles. Black sheets out of store are selling as follows: No. 28, 2.85c; No. 27, 2.75c; No. 16, 2.35c; No. 14, 2.25c; No. 12, 2.15c. Tank plates are firm and sell out of store at 2c to 2.10c for ¼-inch and 2.10c for 3-16, Nos. 8 and 10. Beams and channels are quoted at 2.25c to 2.35c from stock and angles at 2.10c to 2.15c for base sizes.

In merchant pipe the market holds steady with a fair volume of orders being placed. We quote f. o. b. Cincinnati as follows:

MERCHANT PIPE.
(Basing Discounts)

	Steel Pipe		Guaranteed Wrought Iron Pipe	
	Black Per cent	Galv. Per cent	Black Per cent	Galv. Per cent
⅛ and ¼ inches	69.7	53.7	....	....
⅜ inch	73.5	61.3	....	....
½ inch	73.7	61.7	....	....
¾ to 6 inches	77.7	67.7	....	....
7 to 12 inches	72.7	57.7	....	....

Old Material.—The market rules dull and the disturbed condition of the pig iron market has had an adverse influence so that there is but little being done either by buyers or sellers. We quote:

Old No. 1 railroad wrought, net tons	$14.00 to 14.50
Cast machine and foundry, net tons	12.50 to 13.00
Old iron rails, gross tons	20.00 to 20.50
Old steel rails, gross tons	15.50 to 16.00
Old short lengths, gross tons	16.00 to 17.00
Old iron axles, net tons	22.00 to 23.00
Heavy melting scrap, gross ton	15.00 to 15.50
Stove plate, net tons	10.00 to 10.50
Wrought turnings, net tons	9.00 to 9.50
Cast borings, net tons	7.00 to 7.50
Car wheels, net tons	16.00 to 16.50

PHILADELPHIA.

Heavy Contracts for Cast Iron and Steel Pipe.—Market Strong.

June 26.

Pig Iron.—The excitement produced by the cut in southern irons has proved little more than a flurry, and the market continues to show marked strength. The suspicion that stock-jobbing might have had a hand in the unexpected action of the Birmingham furnace men has helped to divest the incident of market importance. The demand for small lots of foundry iron for July and August delivery is very strong, and has served to keep prices fairly steady. For consumers in immediate need of iron the reduction in southern grades is of no benefit, as shipments from the south are usually from four to six weeks in transit. Orders for the last quarter and for 1907 are still slow in coming in, though one cautious consumer is reported as having covered all his requirements up to July 1, 1907. Some good sales of gray forge for pipe founders are reported at $16.50, and an order for 2,600 tons of No. 1 X foundry was placed the other day at a figure near $19.25. Large contracts for cast iron and steel pipe for the city's filtration system were awarded last week at a cost of $1,118,536. As against the prediction of lower prices, which are heard in some quarters because of the holding back of large orders, the following extract from the market letter of a firm dealing heavily in pig iron is interesting: "The conclusion that we draw is that the signal for the march has sounded. The procession has begun. The low point has been reached and passed. The long expected buying movement is under way. The only danger is that it may develop into a rout." Buyers, it must be said, face this danger calmly, and prices show some slight changes in their favor, as follows:

No 1X Foundry	$19.00 to 19.25
No. 2X Foundry	18.50 to 18.75
No. 2 Plain	17.75 to 18.25
Standard Gray Forge	16.25 to 16.50
Basic	17.75 to 18.00
Low Phosphorus	24.50 to 25.00

New Material.—A fair volume of new business is reported, especially for plates, structural material and sheets, but the mills would feel a little easier if they could see ahead of them some of those large contracts for steel cars and other railroad supplies, outside of steel rails, which were announced in such abundance last year. Prices remain unchanged, as follows: Beams, channels and angles according to specifications, 1.83½c to 2c; refined iron bars, 1.63½c to 1.73½c; steel bars, 1.63½c to 1.73½c; plates, 1.73½c to 1.83½c.

Old Material.—No improvement is to be noted, and it begins to look as though this summer would be much duller than last, when activity was well sustained. Prices are gradually softening under the lack of orders, and may be quoted as follows:

Old steel rails	$16.00 to 16.50
No. 1 steel scrap	15.75 to 16.00
Old steel axles	19.00 to 19.50
Old iron axles	24.50 to 25.00
Old iron rails	19.50 to 20.00
Old car wheels	16.50 to 17.00
Choice scrap, R. R. No. 1 wrought	17.75 to 18.25
No. 1 yard scrap	15.75 to 16.25
Machinery scrap	15.50 to 16.00
Low phosphorus scrap	19.00 to 20.00
Wrought iron pipe	13.00 to 13.50
No. 1 forge fire scrap	13.50 to 14.00
No. 2 forge fire scrap, ordinary	9.50 to 10.00
Wrought turnings	12.00 to 12.50
Axle turnings, heavy	13.00 to 13.50
Cast borings	9.00 to 9.50
Stove plates	11.25 to 11.75

BIRMINGHAM.

Satisfactory Conditions Follow the Dissolution of Southern Agreements.

June 25.

Southern pig iron manufacturers have been selling their product right along at the new quotation, $13.50 per ton, No. 2 foundry basis. The $13 quotation was not maintained longer than a day or two following the announce-

ment of a cut in the market and as far as can be learned less than 25,000 tons of iron was sold under $13.50 and less than 15,000 of that went at the low price of $13. J. C. Maben, president of the Sloss-Sheffield Steel & Iron Co., when asked in reference to the new quotation said that his company had not sold iron at that price and that if any iron had been sold as low as $13, it had been sold at an unnecessarily low price. He admitted that orders had been accepted by his company during the first four days of last week aggregating no less than 25,000 tons, delivery during the last half of the year, while negotiations were on for nearly double the amount mentioned. He intimated that he looked for a quick recovery in the market.

The fact that the production has been off so long and is slow in improving in the southern territory may bring about a settlement of the disturbance in the quotations. The policy of selling no more than three months ahead is not being maintained in this district and there is some talk of iron having been sold for delivery during the latter part of the last half of the year. Order books of such companies in this district as are in the market have been filling up for the probable make for the months of July, August and September and all indications point to a better movement of the product in those months than for the past four months. Iron shipments during the month of May were light and the same condition prevailed in June. The make being at low ebb probably saved an accumulation as it is admitted that all the selling during the last two months by the larger companies was in small lots and that delivery was not rushed, the consumers taking the product as the manufacturers shipped it.

The Sloss-Sheffield Steel & Iron Co. will be making iron again at its No. 2 city furnace by the end of this week after sixty days of repairing of the stack. The No. 2 furnace at Ironton of the Alabama Consolidated Coal & Iron Co., which was slated to go into operation by June 15, should be making iron before July 3. The repairing at this plant has been completed and there is need for the iron usually manufactured at this point. The Tennessee Coal, Iron & Railroad Co. will hardly have a furnace ready for the torch for several weeks. The two furnaces to blow in this week or next will make up for the loss in production at the Trussville and Boyles furnaces for the Lacey-Buck and Tutweiler companies, respectively.

So many denials have been made concerning the break in the southern mart that inquiry for information reveals a number of interesting accounts of the same. That there was a gentlemen's agreement can hardly be denied, though the word "agreement" does not look good in cold type. It was first made for thirty days and then the absence of one of the high officials of a larger producing company brought about a continuation for thirty days. There was an understanding, so it is stated on the outside, that prices in the east were to be fifty cents below those in the west. This was not satisfactory, especially to the consumers in the west who were soon cognizant of the situation and showed some feeling not exactly friendly for the alleged discrimination. One of the parties to the "agreement" felt this rebuff and at once gave notice that there would be a change in this direction. Selling agents throughout the country were notified that quotations would be on a basis of $13.50 per ton, No. 2 foundry. Then followed, rapidly, the statement that the $13 iron had been sold in the east.

ST. LOUIS.

Pig Iron Weak and Quiet.—Reports of Very Low Prices.

June 25.

There has been almost no life to the pig iron market the last week. Apparently neither side is eager to negotiate at the present figures. Founders, never liking to purchase on a declining market, are holding back for fear the market will take another drop, and the furnaces, confident that prices must take an upturn in the near future, are not anxious to fill up their books with cheap orders. So the market rests. Several of the iron men are departing on their summer vacations, believing conditions will improve in their absence.

Some few agents have been trying to stir up a little business by cutting under the market, but even this has not been tempting bait. It is reported that an offer was made to furnish one small lot of analysis iron, said to be as good as No. 2, for $12.40, but this sale was not made and does not at all represent the market. No standard furnace will book an order at such a figure or anything like it. The little iron moving is being sold around $13.50.

A settlement of labor troubles at Birmingham gives assurance that when the melters do come into the market they can get their iron, but, as stated, there is no desire to inviegle them into buying now.

A peculiar feature of the situation is that while iron is weak and quiet, coke is stronger. The freight rate has been increased 20 cents from Virginia points. Connellsville is commonly quoted at $5.80 in St. Louis. Iron quotations, including the freight rate of $3.50 from Birmingham, range as follows:

Southern No. 1	$17.25 to 17.50
Southern No. 2	16.75 to 17.00
Southern No. 3	16.25 to 16.50
Southern No. 4	16.00 to 16.25
Gray Forge	15.75 to 16.00

Finished Material.—While there is not as much business as formerly in the market for finished materials, still it is active, quite a steady demand being noted for plates, channels, beams, and bar iron. The mills are beginning to catch up on their spike orders.

Two new projects of especial interest have appeared in the last week. Butler Bros., who conduct a wholesale department store, have purchased a block of ground from Seventeenth to Eighteenth, Olive to Locust, on which they will erect a ten-story building to cost $2,000,000. In the neighborhood of 5,000 tons of steel probably will be required. Mauran, Russell & Garden, the architects, say they will have the specifications ready about July 10. The Ely-Walker Dry Goods Co. will erect a 7-story building to cover half a block from Washington avenue to Locust street on Olive. Eames & Young will have the plans ready in about a month. The structure will require about 2,000 tons of steel.

The strike of the structural iron and steel workers is still unsettled.

NEW YORK.

Cut of Prices in South has Unsettled Pig Iron.—Some Buyers Frightened Away.—Others Undisturbed.

OFFICE OF *The Iron Trade Review*,
ROOM 1315, No. 150 NASSAU ST., June 26.

Pig Iron.—The action of the southern producers in suddenly reducing Birmingham No. 2 prices from $14 per ton to $13 and $13.50 last week created a disturbance in the local market from which it has not yet recovered. The market had long been under suspicion, but the distrust was gradually disappearing so that buyers seemed on the point of coming in for supplies. The startling drop of $1.50 per ton brought back the unsettled condition and there are many in the ranks of both buyers and sellers who are at a loss to know what to do next. At the present writing the market is extremely ragged, and some curious sales have been made. Thus from 1,500 to 3,000 tons of Tennessee iron has been sold for delivery in this market on the basis of $13.50, Birmingham. The differential in freight rates in favor of the furnace probably induced the producers to ship here instead of to the middle west.

Sales have not been very heavy, neither have they been abnormally light. Under the conditions of uncer-

tainty prevailing dealers are extremely reticent concerning sales. Most of the buying has been of the regular customer sort. Ferro-manganese has again become scarce with prices very firm.

Northern No. 1 Foundry	$18.25 to 19.00
No. 2 Foundry	17.75 to 18.55
No. 2 Plain	17.50 to 18.00
No. 1 Southern Foundry	17.50 to 18.00
No. 2 Southern Foundry	17.00 to 17.50
No. 3 Southern Foundry	16.15 to 17.00
No. 4 Foundry	15.50 to 16.00

Certificates and Warrants.—Trading in standard foundry contracts on the New York Produce Exchange has been more active during the week, a number of sales being recorded. Prices have fluctuated more than usual, but the total change for the period is inconsiderable. Foundry warrants for between 800 and 1,000 tons of No. 2 southern were reported sold at $13.25. On Saturday 200 tons of standard foundry October, brought $17. The following are today's quotations:

Standard Foundry Contracts.

	Bid.	Asked.
June	17.00	17.50
July	17.00	17.50
October	16.80	17.10
November	16.75	17.10

Finished Iron and Steel.—Rails and structural steel continue to lead the steel market in activity, although the week has thus far furnished nothing phenomenal. Sales have been small individually, but in the aggregate the total is considerable. About 40,000 tons of rails have been sold up to the present writing and about an equal quantity of structural shapes, and there are sufficient heavy contracts pending in both fields to double these figures before this issue goes to press if negotiations can be brought to a head. Rail sales will be given in detail elsewhere in this issue. In the structural field most of the orders placed were for small railroad bridges. Many other small bridges remain to be provided for and there is also a contract to be let for 25,000 tons additional steel for the New York Central terminals. The largest individual order for bridge work was one from the Erie railroad involving 2,950 tons. This contract was awarded to the American Bridge Co. which also secured contracts to supply 600 tons for government bridges over the Illinois and Mississippi canal, 600 tons for bridges in Indiana, 250 tons for the Scarritt building in Kansas City, and a number of other smaller jobs. The plate market has been quiet, but no reduction in prices for narrow widths has been noted in the local field. Bar iron is still weak and the association is experiencing some difficulty in maintaining its price.

The following are prices at tidewater: Angles, 3 to 6 inches x ¼ inch and heavier, 1.84½c; beams, 3 to 15 inches, 1.84½c; tees, 3 x ¼ inch and heavier, 1.89½c; plates, carloads, tank, 1.74½c; flange, 1.84½c; marine boiler, 2.41½c; refined iron bars, 1.59½c to 1.64½c; soft steel bars, 1.64½c; sheets, No. 28 black, 2.50.

Old Materials.—The demand for scrap is not active and business has been light with, however, no material change in values. Heavy melting steel seems to have quieted down, only a few sales of 100 tons each having been reported during the week. Stocks are not large in the yards and holders seem inclined to wait for their own prices. Owing to the number of buildings torn down this season, the supply of cast scrap has been unusually large in this vicinity. The demand for cast iron car wheels is extremely light. One sale of old rails for rerolling is reported, the total being about 200 tons. The following are prices approximately f. o. b. tidewater:

Old iron rails	$21.00 to 22.00
Old steel rails, long lengths	15.00 to 15.50
Old steel rails, short pieces	14.50 to 14.75
Relaying rails	24.00 to 25.00
Old car wheels	17.00 to 18.00
Old iron car axles	26.00 to 27.00
Old steel car axles	19.00 to 19.50
Heavy melting steel scrap	14.00 to 14.50
No. 1 railroad wrought scrap	17.50 to 18.50
Iron track scrap	16.50 to 17.00
Wrought pipe	12.50 to 13.50
Cast borings	9.50 to 10.00
Wrought turnings	13.00 to 13.50

Metal Market

ST. LOUIS.

June 25.

In spite of the fact that lead ore was advanced to $90 a ton, the highest price ever paid in the Missouri and Kansas fields, the metal ruled dull and lower. After some heavy selling at the outset of the week the market eased off and declined to $5.82½, compared with $5.90 last week. Some dealers asked more than the quotation.

In sympathy with lead zinc also suffered a decline to $6.06, but this drop of 9 cents did not tempt purchasers to any extent. No sales were reported today.

NEW YORK.

June 26.

Pig Tin.—The market has undergone the fluctuations usual of late and the close is weak and lower. The following are today's quotations: Spot, 38.85 to 39; June, 38.55 to 38.70; July, 38.25 to 38.50; August, 38.25 to 38.50; London, £177 12s 6d and £177. Arrivals for the month to date, 2,627 tons; afloat, 2,886 tons.

Copper.—There has been little trading and metal is offered more freely for spot and nearby future. Today the market is weak, dull and nominal. Today's quotations: Lake, 18¼ to 18¾; electrolytic, 18¼ to 18½; casting, 18⅛ to 18¼. London, £82 and £80 15s. Exports for the month to date, 15,097 tons.

Lead.—The demand has been less and the close was dull. Today's closings, 5.85 to 5.90; St. Louis, 5.82½. London, £16 12s 6d.

Spelter.—The market is dull. Today's quotations: 6.05 to 6.15; St. Louis, 6.00, sellers. London, £27.

Antimony.—The market is weak and nominal. Today's quotations follow: Cookson's and Hallett's, 24 to 25; other grades, 23 to 24.

CHICAGO.

June 26.

The metal market shows signs of easing off from the strain under which it has labored for some weeks past. The freer offerings of copper for spot and nearby shipments have resulted in softer prices without material change. Lake is now quoted at 18½c to 18¼c, and casting at 18⅛c to 18¼c. Sheet zinc is still held at $7.75 list f. o. b. LaSalle in car lots. Spelter is offered for prompt delivery at 6.15c to 6.25c for car lots; lead, desilverized, 6.10c to 6.20c for 50-ton lots; corroding, 6.60c to 6.70c for 50-ton lots. Cookson's antimony is quoted at 32c, and other grades, 29c to 30c.

The old metal market is without noticeable change, and prices are substantially the same as last week. Demand is very light. We quote dealers' buying prices, as follows:

Copper wire, 16¼c; heavy copper, 16c; copper bottom, 15c; copper clips, 15½c; red brass, 15¼c; yellow brass, heavy, 12c; yellow brass borings, 10c; red brass borings, 13½c; lead, 4½c; zinc, 4½c; tin foil, 31c and light brass, 8½c; pipe lead, 4½c; tea pewter, 23c.

Large Pipe Contract Awarded.—Pipe contracts were awarded Saturday by the city of Philadelphia as follows: Walter Wood & Co., cast iron pipe, 3,229 tons; East Jersey Pipe Co., steel pipe, 53,000 feet; J. McNeil Co., 26,400 feet; Carr-Carroll-Porter Co., 23,000 feet. Individual prices were not given. The aggregate amount was $1,118,536. The pipe will be used in the new water works and filtration system.

At the annual meeting of the Detroit Iron & Steel Co., held at Delray last week, the old officers and directors were elected. The report of the year was a most satisfactory one.

The lock plan of construction for the Panama canal has been decided upon by both houses of the national legislature and the work will be pushed as rapidly as possible.

THE IRON TRADE REVIEW

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THE SPREAD BETWEEN SHEET BARS AND FINISHED MATERIAL.

While the price of sheet bars has advanced $3.00 a ton since the closing months of 1905, the new price of $29.00, Pittsburg, is not out of harmony with prices of sheets and tin plates now ruling, judged by the standards of the past few years. Making comparisons with prices ruling 10 or 15 years ago, on the other hand, it can be seen that the spread between the crude and finished material has greatly decreased.

In the early months of 1893, before the financial panic which resulted in a decline in prices all along the line, sheets were selling at 2.95c at mill for No. 28 gauge, and sheet bars at $25.00. Assuming a short ton of sheets to a gross ton of sheet bars, there is a deduction of 1.25c to be made from the 2.95c price of sheets, leaving a spread of 1.70c. After the general drop of prices in 1893 and 1894 the market was left fairly steady at the close of 1894, so that in December, 1894, and January and February, 1895, the market was quite steady at 2.35c for sheets and $18.00 for sheet bars, showing a spread of 1.45c. A year and a half of "hard times" had brought all prices down and reduced all spreads.

In the first two or three years of the sheet and tin plate consolidations, comparatively high spreads existed between sheet bars and sheets and tin plates. In the fall of 1902 sensational cuts were made in both sheets and tin plates, and since then the spread between them and sheet bars has been lower than formerly, and has fluctuated within comparatively narrow limits. At the date of the cut in tin plate to $3.60 per box, Nov. 3, 1902, sheets were 2.75c, sheet bars $31.75 and pig tin 26.15c. Allowing 2¾ pounds of tin per box of tin plate, and 20 boxes of tin plate or 2,000 pounds of sheets to the gross ton of sheet bars, the spread of tin plates above steel and pig tin was $1.42 and of sheets above steel $1.16. A year later, when on Nov. 16, 1904, tin plates were reduced from $3.80 to $3.60, sheets were 2.45c, and the spread for sheets was $1.25 and for tin plates $1.83. These were maximum figures. When the cut in tin plates from $3.45 to $3.30 was made on July 25, 1904, the spread for tin plates was $1.56. Sheets were then 2.10c, showing a spread of only 90 cents. Since that time the spread for sheets has generally ranged from $1.00 to $1.15. The spread for tin plates has shown a greater range, on account of the fluctuations in pig tin. Thus when in the middle of May of this year pig tin was almost 50 cents a pound, the spread could be figured out at only $1.08, but this was simply a temporary condition.

At the present time, with tin plates at $3.75, pig tin at about 40 cents a pound, and sheet bars $29.00, the spread for tin plates is $1.40. This is just about what it has averaged since the latter part of 1902, at which time, as noted, a practically new era in sheet and tin plate prices was inaugurated. Indeed, it is higher than on Oct. 2 last, when for the second time in the past few years the official price of tin plates got down to $3.30, since at that date pig tin was 32.37c and sheet bars $26.00, making a spread for tin plates of only $1.27. At present figures the spread for sheets is $1.05, and this also is about the average since the latter part of 1902.

It goes without saying that these small spreads would have been considered ruinous 10 or 15 years ago, when profits were more evenly distributed all along the line from ore to ultimate finished product. In the past few years there has been a new era, concentrating profits more largely in the primary lines, and cutting them off close in the finishing departments. The record of three or four years past, however, has shown that the change has been made, and that there is practically no further movement in that direction. The independent finishing mills in sheets and tin plates do not feel that they are in a very comfortable position, but their position is better than it was a few months ago and their outlook for the next few months is good. At this time a year ago the market on their finished product was weakening, and there were large stocks to contend with. At the present time exactly the reverse is the case. There are practically no stocks of either product and spot demand promises to be very good during the summer. The sources of sheet bar supply promise to be better late in the year, with the possibility of course that competition may make the price a more interesting one. The new steel plant at Youngstown is scheduled to be completed by Sept. 1, and should have some sheet bars for the market. The other outside steel interest at Youngstown will be relieved of furnishing steel in this direction, while expecting to have increased steel capacity of its own, so that late in the year there may be two new sellers of sheet bars of importance.

NEW ORE EXPLORATIONS BY THE GEOLOGICAL SURVEY.

According to a current bulletin of the United States Geological Survey, important work is to be prosecuted in the exploration of deposits of iron ore outside of the Lake Superior region. Having made detailed reports on each of the Lake Superior ranges, and believing that the resources of that region are now pretty well determined, the survey is about to prosecute work in New York, New Jersey, Tennessee, Virginia, Alabama and in the west. The work mapped out is to explore all the prominent or promising iron ore regions in the United States, and examine and map them in detail. The work canot be done rapidly, as there is a limit to the funds, but a definite campaign has been inaugurated which will be prosecuted as fast as possible.

The first important work to be published will probably be that relating to deposits in Alabama. It is well

known that information as to the character and extent of the Alabama deposits has been in strikingly small ratio to the quantity of ore which has been raised. A mine would be opened and the ore merely followed to wherever it led, a larger or smaller proportion of the vein being mined as conditions dictated from time to time. Not the slightest approximation has been possible as to the total extent of the ore deposits, for the double reason that the mere extent of the ore has been undetermined, while the proportion which can be profitably used has likewise been undetermined.

There is good reason to believe that the work of the survey will show the ore resources of the United States to be much larger than they have been suposed by many who have attempted to compile general summaries. Thus in the too widely quoted summary last year made for the Swedish government, the United States was dismissed with an estimate of the Lake Superior deposits, and a ridiculously small estimate for Alabama, all other deposits in the country being totally ignored. The obituary of iron making in the United States cannot be so easily written.

THE ANTI-TRUST LAW AND TRADE AGREEMENTS.

The present activity of the department of justice in proceeding against so-called monopolistic combinations is of more than passing interest to the iron and steel trade, for if the line of action now being followed prevails, not a price control association will be safe from attack. The department has brought action against a number of unincorporated trade associations, notably the National Association of Retail Druggists, having for a purpose the control of ruinous competition by means of selling price agreements. The question at issue is whether any group of individuals in the same branch of trade can legally agree upon a price for which a given commodity is to be sold.

If the principles enunciated in several judicial decisions of the past two years is to prevail, the business of the country will be shaken to its foundations, for there is scarcely a branch of trade which is not governed by a price agreement of some sort. The theory of the law as interpreted seems to be that anything that tends to limit competition is evil, but business men believe that extreme competition has ceased to be beneficial and are everywhere seeking means to curb its ruinous effects. This is evident on all sides. Not only have we "official" prices for some products, but every town and village in the country has one or more associations of merchants, the sole object of which is to maintain a fair price. Sometimes the agreement is definite and fortified by penalties, sometimes there is only a vague understanding. According to recent interpretations of the law, it makes no difference how definite and how binding the agreement happens to be; so long as there is an understanding, collusion is charged and assumed.

The border line of conspiracy in controlling prices has never been determined. The law encourages certain forms of monopoly and punishes others. If a manufacturer of a machine costing $50 chooses to sell his product for $500, he can do so with impunity. But if two or more manufacturers of similar machines agree orally or in writing that they will not sell their competing product for less than a determined price, they become subject to legal proceedings. The question of fair profit or the actual cost to the consumer does not seem to enter into consideration at all.

Trade associations are a part of modern business. To proceed upon the assumption that they are in principle all bad because they ameliorate some of the worst evils of competition can not fail to have an injurious effect. It has been proved again and again that to allow the competitive struggle with all its scientific destructive weapons to run its ruinous course inevitably brings hardship to the consumer, as well as to the small producer. Price control associations are not confined to this country. In at least one European state they are encouraged and regulated by law.

It is only by means of trade agreements that the small independent producer can survive in the same field with his powerful rival, and it is a strange commentary upon our system of legislation by popular demand that the very law which was enacted for the purpose of curbing the huge combinations that threatened to crush individual effort is now found to apply only to those whom it was intended to protect.

THE PARIS LOAN OF THE PENNSYLVANIA.

The announcement that the Pennsylvania railroad has completed arrangements for a $50,000,000 loan in Paris, taken with President Cassatt's accompanying statement, is of great interest to the iron trade. The prosperity of the railroads is so intimately connected with that of the iron business that anything which affects the former is of importance to the latter. It will be remembered that in 1903, owing to the difficulty which they experienced in making loans, the railroads stopped all new work, and even repair work was limited as much as possible. When, however, in 1904, the great railway systems were able freely to place loans, they began to buy heavily, and this buying, which has continued steadily up to the present time, has been an important factor in the prosperity which the country has enjoyed. Mr. Cassatt states that the proceeds of the French loan, together with the amount that will be available from other sources of the company, will meet the payments for the 33,000 50-ton steel cars and 313 locomotives, which are being built at a cost of $42,000,000, and provide the money for the completion of the water supply system. He also states that since 1890, the company's stock has been increased from $129,000,000 to $303,000,000, while the bonded debt has been augmented from $88,000,000 to $192,000,000. The aggregate increase in bonds and stocks, including the premiums on the latter, amounts to $300,000,000. Of the proceeds of these issues, about $122,000,000 was expended on improvements and additions to the property, all of which were absolutely necessary to the proper handling of the largely increased traffic and to the construction of the New York tunnels and the terminal. Mr. Cassatt further states that

from 1900 to 1905, inclusive, $70,000,000 was taken out of income and expended on improvements. These are indeed large figures, but that the improvements have not been more than necessary is shown by the statistics collected by the *Financial Chronicle*, showing that within the brief space of seven years, it has been necessary to furnish additional track facilities and additional rolling stock and motive power for handling 13,000,000,000 tons more of freight one mile and 1,400,000,000 more passengers one mile. In the period between 1898 and 1905, the gross income of the Pennsylvania Co. has increased from $71,000,000 to $146,000,000 and the net income has risen from $11,000,000 to $30,000,000.

Preceding the negotiations of the Paris loan, the company had within a few months borrowed $70,000,000 in the United States, and, in view of the fear expressed in some quarters that the great demands for money by the railroads and other corporations could not be readily met in this country, it is very satisfactory to find that foreign capital is so willing to absorb American securities. The character of the loan to the Pennsylvania is such as to encourage the belief that the French investors will never regret the action just taken, and that it may be possible to negotiate similar loans, if it should become necessary.

The subject of electric smelting of iron and steel has of late attracted considerable attention. Much has been written regarding it, but no comprehensive outline of all the processes which have been developed, nor the present status of the subject is at hand. THE IRON TRADE REVIEW has arranged with a high authority, Mr. John C. B. Kershaw, of Liverpool, to prepare a series of articles on the subject of "Electric Smelting." The first of these appears in the current issue; the others will appear from time to time at short intervals and will take up the subject in all its details and illustrate the different processes and furnaces which have been developed.

Prices have been reaffirmed during the week by both bar iron and nut-bolt interests.

NEW WHITNEY FACTORY.

The Whitney Mfg. Co., Hartford, Conn., is proceeding with the erection of a new factory building on specifications of architect William A. Boring of New York. The contract has been awarded to the Tide Water Building Co., of New York, and W. R. C. Corson, of Hartford, is to have charge of the surveying and installing of power and heating apparatus. The new building will be located on a tract 450 x 560 feet in the Hartford manufacturing district, amply supplied with switching connections. The building will be of reinforced concrete and fireproof construction 61 x 228 feet, four stories high, which, with a single story extension building, 64 square feet, will give a floor space of 62,000 square feet. In designing the factory special care has been taken to provide for the economical handling of the specialties manufactured and for the comfort and convenience of employes. The company manufactures driving chains for motor cars, bicycles, machinery, etc., milling machines, water tool grinders, keys and cutters for the Woodruff patent system of keying, "Presto" chucks, collets and friction tapping devices and small printing machines.

Differences Settled—There is to be no strike in the foundries of Newark, N. J., on July 1. The conferences between a committee of nine of the chief foundrymen in the district and representatives of the employes which have been held during the past few days resulted in an agreement on all points at issue. All molders are after July 2 to receive an increase of 35 cents per day of nine hours and the coremakers 25 cents more than the present daily rates. The details of the agreement have not been completed and the signatures have not yet been affixed. For some reason not explained the International Pump Co. was not represented in the conferences.

Declare for Open Shop.—The fourth annual convention of the National Saddlery Manufacturers' Association, held in Chicago, adopted a resolution declaring for the "open shop." The following officers were re-elected: President, Edwin A. Armstrong, Detroit; vice president, Owen Gathright, Louisville; treasurer, Albert Kuhlmey, Chicago; secretary-commissioner, Henry Othmer, Chicago.

Will Take in Auto Manufacturers.—The eastern branch of the National Metal Trades Association has organizers at work among the automobile factories in New York and suburban towns to enroll the automobile concerns in the association. The campaign of organization is to be carried into all the eastern cities.

ALL SCALES SIGNED

Except by Independents, Who Failed to Agree with Amalgamated.

With the exception of the independent manufacturers of sheets and tin plate, who, at the conference with the officers of the Amalgamated Association of Iron, Steel & Tin Workers failed to come to an agreement, all the scales for the year beginning July 1 have been signed. The independent manufacturers at the conference asked for a reduction of 12½ per cent under the scale in effect last season and when this could not be adjusted, the conference adjourned. No date has been fixed for another conference, and if this is not arranged before July 1 the Amalgamated Association will ask the independent manufacturers to sign the agreement individually, and without further conference as an organization.

The only changes in the scale signed by the American Sheet & Tin Plate Co., as against last year's scale covering its union mills were in two footnotes:

No. 1, regulating the minimum and maximum weight of sheets and providing that where a sheet gauges below half size, the tonnage men receive the benefit and be paid for the next lightest gauge, and note nine under the jobbing mill sheet scale providing that companies operating mills have the privilege of classifying same every week. Under the old scale mill owners were allowed to classify the mills only three times a year.

The new regulation governing maximum and minimum weight of sheets is given below and represents the minimum, base and maximum weights per square foot for each gauge on sheets and plate:

No.	Guage	Min.	Base	Max.
1		11	11 25	11 80
2		10 32	10 625	10 93
3		9 7	10	10 3
4		9 1	9 375	9 6
5		8 5	8 75	9
6		7 85	8 125	8 4
7		7 3	7 5	7 8
8		6 65	6 875	7 2
9		6	6 25	6 5
10		5 45	5 625	5 9
11		4 7	5	5 3
12		4 15	4 375	4 6
13		3 535	3 75	4
14		3 041	3 125	3 4
15		2 725	2 8125	2 9
16		2 431	2 5	2 6
17		2 20	2 25	2 3
18		1 9	2	2 10
19		1 7	1 75	1 8
20		1 463	1 50	1 60
21		1 35	1 375	1 43
22		1 19	1 25	1 31
23		1 07	1 125	1 18
24		94	1	1 06
25		82	875	93
26		72	75	81
27		66	6875	715
28		60	625	650
29		532	5625	593
30		469	5	531
31		4226	4375	468
32		3907	40625	4218
33		3596	375	396
34		32845	3437	359

NOTE.—The usual 2½ per cent variation allowed by the United States Standard Gauge is included in above figures.

Under the sheet mill hands' scale the following new note was inserted in the scale:

9. Any mill working over 28 inches wide during the week shall be classed as a small double mill, and there shall be no averaging done during that week.

On mills working 36 inches wide during the week, the day hands shall be paid large mill prices for all orders worked during that week.

Large mill prices shall be maintained on all orders over 30 inches wide; also on firebed containing over 20 square feet.

Union and Non-Union Mills.

The union and non-union mills of the American Sheet & Tin Plate Co. and independent manufacturers are given below:

AMERICAN SHEET & TIN PLATE CO.

Union Sheet Mill Plants.

	No. Mills
Aetna-Standard, Bridgeport, O.	23
Guernsey, Cambridge, O.	7
Midland, Muncie, Ind.	7
Piqua, Piqua, O.	4
Struthers, Struthers, O.	6
Total	47

Non-Union Sheet Mill Plants.

	No. Mills
Canal Dover, Canal Dover, O.	10
Canton, Canton, O.	5
Hyde Park, Hyde Park, Pa.	5
Leechburg, Leechburg, Pa.	10
Mercer, Sharon, Pa. (also continuous mill)	10
New Philadelphia, New Philadelphia, O.	10
Old Meadow, Scottdale, Pa.	8
Scottdale, Scottdale, Pa.	9
Saltsburg, Saltsburg, Pa.	4
Vandergrift, Vandergrift, Pa.	29
Wellsville, Wellsville, O.	10
Wood, McKeesport, Pa.	15
Total	125

Union Tin Plate Plants.

	No. Mills
American, Elwood, Ind.	28
Anderson, Anderson, Ind.	7
Falcon, Niles, O.	6
Humbert, Connellsville, Pa.	6
LaBelle, Wheeling, W. Va.	10
Laughlin, Martins Ferry, O.	23
Greer, New Castle, Pa.	20
Sharon, Sharon, Pa.	20
Shenango, New Castle, Pa.	30
Morewood, Gas City, Ind.	8
Total	158

Non-Union Tin Plate Plants.

	No. Mills
Chester, Chester, W. Va.	7
Cambridge, Cambridge, O.	6
Crescent, Cleveland, O.	6
Monongahela, Pittsburg (also continuous mill)	8
National, Monessen, Pa.	25
Pennsylvania, New Kensington, Pa.	6
Pittsburg, New Kensington, Pa.	7
Sarraton, Morgantown, W. Va.	10
Star, Pittsburg	8
United States, McKeesport, Pa.	11
Total	94

INDEPENDENT INTERESTS.

Union Sheet Mill Plants.

	No. Mills
American Rolling Mill Co., Middletown, O.	4
Ashland Sheet Mill Co.	6
Empire Steel & Iron Co., Niles, O.	4
Follansbee Bros., Follansbee, W. Va.	2
National Enameling and Stamping Co., St. Louis, Mo.	8
Newport Rolling Mill Co., Newport, Ky.	10
Niles Iron & Sheet Co., Niles, O.	4
Waynesburg (Pa.) Forge, Sheet & Tin Mills	2
Western Sheet & Tin Plate Co.	3
Whitaker-Glessner Co., Wheeling, W. Va.	10
Wilkes Rolling Mill Co., Sharon, Pa.	1
Youngstown Iron & Steel Roofing Co., Youngstown, O.	5
Youngstown Sheet & Tube Co., Youngstown, O.	6
Zug & Co., Pittsburg	6
Total	71

Non-Union Sheet Mill Plants.

	No. Mills
Allegheny Steel Co., Avenue, Pa.	8
Interstate Steel Co., Avenue, Pa.	3
American Rolling Mill Co., Zanesville, O.	5
Canonsburg Steel & Iron Co., Canonsburg, Pa.	5
Inland Steel Co., Indiana Harbor, Ind.	8
Lalance & Grosjean Mfg. Co., Harrisburg, Pa.	1
Marshall Iron Co., Newport, Del.	2
McCullough Iron Co., Wilmington, Del.	4
Parkersburg Iron & Steel Co., Parkersburg, W. Va.	9
Stark Rolling Mill Co., Canton, O.	6
Alan Wood Iron & Steel Co., Philadelphia	4
J. Wood & Bros. Co., Conshohocken, Pa.	4
Total	59

Union Tin Plate Plants.

	No. Mills
Alcania Company, Avonmore, Pa.	3
Carnahan Tin Plate & Sheet Co., Canton, O.	6
Follansbee Bros., Follansbee, W. Va.	6
W. H. Griffiths Co., Waynesburg, Pa.	5
Griffith Charcoal Iron Tin Mills, Washington, Pa.	2
McClure Company, Washington, Pa.	5
National Enameling & Stamping Co., St. Louis, Mo.	24
Pope Tin Plate Co., Steubenville, O.	12
N. & G. Taylor Co., Cumberland, Md.	8
Waynesburg Forge, Sheet & Tin Mills, Waynesburg, Pa.	4
Western Sheet & Tin Mill Co., Greencastle, Ind.	3
Whitaker-Glessner Co., Wheeling, W. Va.	4
Total	82

Non-Union Tin Plate Plants.

	No. Mills
Lalance & Grosjean Mfg. Co., Harrisburg, Pa.	4
McKeesport Tin Plate Co., McKeesport, Pa.	10
Phillips Sheet & Tin Plate Co., Clarksburg, W. Va.	8
Standard Tin Plate Co., Canonsburg, Pa.	5
Total	27

LATE NEW YORK NEWS.

New York, June 27.—Late rail sales are as follows for 1906 delivery: Northern Electric, San Francisco, 2,950 tons; Grand Trunk, 11,000: for 1907; Cairo & Thebes, 4,000; Norfolk and Western, 11,500 out of probable total of 30,000; Northern Electric, San Francisco, 6,000; Central Railway of New Jersey, 5,000; Wabash, 10,000; Delaware, Lackawanna & Western, 12,500. Inquiries for rails for export are fully 50,000 tons; of these the Imperial Railway of Japan asks for 6,000; the Grand Mineral of Mexico wants enough for 250 miles of track.

The pig iron market is more settled. Sales of foundry are heavy. The corporation bought small lots of basic.

A bill has been passed by the lower house of congress authorizing the Jones & Laughlin Steel Co. to erect a bridge over the Monongahela river. This will give the Wabash railroad an entrance to the mills of the company and permit it to reach the company's south side mills. Another bill which has passed both houses authorizes the Black River Bridge Co. to build across the river west on a small division from Wheeling island to the western Ohio shore.

The Economy Specialty Mfg. Co. has been organized at Huntington, W. Va., to manufacture a number of novelties, including a metal mail box. Lester A. Pollock is president; William J. Connell, vice president and superintendent; and Charles H. Burton, secretary-treasurer. The company has leased a plant at Huntington and installed machinery.

LARGE CONTRACTS AWARDED.

(Special Telegram.)

Pittsburg, June 27.—The Westinghouse Machine Co., has been awarded the contract for eight gas blowing engines for blast furnaces of the new plant of the United States Steel Corporation at Gary, Ind. The contract for the electrical power station equipment was awarded to the Allis-Chalmers Co., Milwaukee.

TRADE PUBLICATIONS.

The Allis-Chalmers Co., Milwaukee, has issued bulletin No. 1053, describing the Allis-Chalmers Reliance Corliss engines, direct connected type, ranging in capacity from 50 to 400 horsepower.

The Colburn Machine Tool Co., Franklin, Pa., is distributing catalog B descriptive the Colburn universal saw table. This saw table is well adapted to pattern work, as well as to other uses.

The E. W. Bliss Co., 8 Adams St., Brooklyn, N. Y., has issued a catalog entitled, "Bliss Machines for Manufacturing Electric Parts." The catalog contains 52 pages and describes a large line of presses for stamping armature discs and armature segments; shears; disc notching presses; punches; bending rolls; drop hammers, etc.

The Duluth Corrugating & Roofing Co., Duluth, Minn., is distributing catalog No. 6, illustrating ornamental steel ceilings, iron roofings and sidings, cornices, etc. The catalog is a publication 11¾ x 8¾ inches containing about 130 pages devoted almost entirely to illustrations of ornamental stamped metal work suitable for ceilings, sidings, etc.

The Canton Pump Co., Canton, O., in catalog 16 B describes and illustrates steam pumps for every service. Among the pumps listed may be mentioned acid pumps, air pumps, boiler feed pumps, brine pumps, elevator pumps, fire pumps, mine pumps, oil pumps, etc. The catalog contains 68 pages, and is handsomely printed in two colors and plentifully illustrated. In addition to the description of machinery, about 15 pages are devoted to useful information relating to hydraulics.

The Wellman-Seaver-Morgan Co., Cleveland, recently issued a catalog describing iron and steel works equipment, it being devoted more particularly to open-hearth and reheating furnaces. Illustrations are presented, showing stationary and Wellman tilting types of open-hearth furnace at a number of plants, including those of Wickwire Bros., Cortland, N. Y.; the Grand Crossing Tack Co., Hutchinson, Ill.; the Atlanta Steel Hoop Co., Atlanta, Ga.; the United States Steel Corporation, Cleveland; the Algoma Steel Co., Sault Ste Marie, Ont., etc.

BRIDGE A MILE LONG

Will be Constructed of Steel by Canadian Pacific Railway.

(Special Correspondence.)

Toronto, Can., June 25.—The Canadian Pacific railway is preparing to construct a steel bridge across the Belly river, at Lethbridge, Alberta, which will be one of the largest, if not actually the most extensive bridge of its kind in the world. It will be one mile in length and 300 feet high, and will be a double bridge with the railway track on the top. Its construction will enable the company to shorten the mileage between Lethbridge and Macleod, as well as to lower the grade, enabling heavy loads to be carried at less cost. Owing to the steel works being so rushed with orders at present it is thought that it will be impossible to obtain the structural material for delivery this season, but the masonry will be proceeded with at once so as to have it in readiness for the girders next year.

The Mineral Range Iron Co., which operates magnetic iron ore mines near Bancroft, Hastings county, has received large orders from American iron manufacturers. It is constructing a five-mile spur from the Central Ontario railway to its mines to facilitate shipments.

The monthly report of the department of trade and commerce of Canada for March shows total imports of iron and steel and their manufactures amounting to $3,651,295 as against $4,376,153 in March, 1905. The imports from the American market were valued at $3,133,130, as compared with $3,900,250. The decrease is entirely owing to the closing of the Canadian market to steel rails which were brought in duty-free in March, 1905, to the value of $1,459,804. Most other important items show a heavy increase in American importations, machines and machinery having risen from $512,336 to $706,287, and wire from $159,159 to $265,903.

The Gallagher Iron Mining Co., Ltd., has been incorporated, head office, Sault Ste. Marie, capital $500,000; provisional directors: Francis P. Sullivan, John J. Gallagher and Francis H. Hughes.

John A. Topping, president of the Republic Iron & Steel Co., and chairman of the Tennessee Coal & Iron Co.'s board, brands as baseless the report widely circulated of late to the effect that these two companies were to form a giant combination with the Jones & Laughlin Steel Co. and the Cambria Steel Co.

NOTED BRITISHER DEAD.

George J. Snelus, metallurgist and vice president of the British Iron & Steel Institute, died on June 20, at his residence at Ennerdale hall, Fritzington, Cumberland, England. He was born June 25, 1837, at Camden Town, London, and was given a thorough scientific training, closing with the scholarship at the Royal School of Mines. Upon graduation he secured appointment as chief chemist at the Dowlais Works, a post he filled for four years and a half. In 1871 he was made a member of the scientific commission sent to this country to investi-

GEORGE J. SNELUS.

gate steel-making processes, and on his return to England he announced the discovery of a process which enabled the making of pure steel from impure iron in a Bessemer converter lined with basic materials. This discovery gained him the gold medal of the Iron and Steel Institute in 1863 and revolutionized the steel-making industry, as phosphoric iron, theretofore useless in steel making, could be used. His processes are employed in all countries. Mr. Snelus made many contributions to scientific and technical journals and was regarded as an authority on all matters relating to iron and steel. He devoted his life to metallurgy and was connected with a number of iron and coal companies. He was vice president of the Iron and Steel Institute and a member of the Institute of Mining Engineers.

Corporation Officials Meet.—Officials of the United States Steel Corporation and its various subsidary companies held a meeting last week in the office of President Buffington, of the Illinois Steel Co., at Chicago. Among those at the conference were the following: President W. E. Corey; Vice President James Gayley; F. E. House, W. C. Olcott, W. B. Dickson, Daniel Coolidge, W. R. Walker, W. B. Shiller, D. G. Kerr, J. A. Farrell, John Reis, W. J. Filbert, D. M. Clemson, J. H. Reid, A. C. Dinkey, W. P. Palmer, Thomas Lynch, C. W. Bray, J. A. Hatfield, Charles Cole.

SITUATION IMPROVED.

National Founders' Association Reports Progress in Ending Strike.

The National Founders' Association reports the strike situation throughout the country as steadily improving, with a constantly increasing tonnage. It estimates that about 3,000 new molders will be the result of the strike, and that already nearly 1,000 molding machines have been installed since May 1, with many more ordered.

The further statement is made that the Iron Molders' union has issued a call upon its entire membership for $1 per capita for the next three weeks and as much longer as necessary for the relief of strike funds which are said to be exhausted. For this reason, it is stated, the national officials of the union have issued instructions not to press demands heretofore presented and under no circumstances to consider going on strike and thereby add to those already on the strike benefit list.

The settlement at Willoughby, O., was incorrectly reported in the issue of June 7. Molders and coremakers in that village returned to work at increased wages, but gave up their demand for a nine-hour day, which had been their leading contention.

The Whiting Foundry Equipment Co., Chicago, reports that on June 18 eight of its old men, who had struck May 1, returned to work without any written or oral agreement recognizing the union in any way. The following day four more returned, and on Wednesday of that week four more. These men are working under old conditions, with non-union handy men in the same shop.

Court Commissioner Hugh Ryan, of Milwaukee, has issued an injunction on behalf of the Bucyrus Steam Shovel & Dredge Co., restraining members of the molders' unions from interfering with, hindering or otherwise impeding the business of the Bucyrus Co. in the operation of its works in South Milwaukee. Picketing is prohibited, and strikers are prohibited from trying to compel employes of the company to listen to their arguments. The injunction is a temporary one and will be argued later.

The slight labor troubles at the Portsmouth Steel Co.'s plant have been adjusted and with the exception of a three-high plate mill, which is off on account of shortage of stock, the plant is running steadily in all departments.

The Wellman-Seaver-Morgan Co., Cleveland, recently purchased three motors of 100 horsepower each from the Crocker-Wheeler Co.

PENNSYLVANIA NEWS NOTES.

The new Federal Steel Casting Co. put its furnace at Chester, Pa., into operation on June 20, and the first heat was successfully poured in the presence of H. H. Houston, J. H. F. Dixon and John W. Booth, who are interested in the company. The plant of the old Delaware River Steel Casting Co., which went into the hands of a receiver last year, has been taken over by the company which has a mill equipped with one 30-ton open-hearth furnace.

The South Chester Tube Co. has started up its little mill at Chester, Pa., after a long idleness.

The Crane Iron Works is erecting a handsome new office building on the Queen Anne style at its works at Catasauqua, Pa. It will be two stories with four offices on each floor.

The Landis Tool Co. and Landis Machine Co., operating plants at Waynesboro, Pa., propose to consolidate with half a million capital.

Work on the huge dam at McCall's ferry in the Susquehanna river below Columbia, Pa., has been stopped through fear of legal proceedings. The company has discharged the 400 men at work and will ask a new charter after a bill is presented in the legislature.

The sales agents of the Pennsylvania Steel Co. held their annual conference at the plant of the company in Steelton, Pa., on Friday of last week. They were dined by Vice President Reynders at his residence in Steelton and at the Harrisburg club by the management. The agents, escorted by a number of officials of the company, inspected the plant at Steelton and then visited the furnaces at Lebanon, Pa., and the plant of the Maryland Steel Co. at Sparrow's Point, Md.

The Eyre Construction Co., a Pennsylvania corporation, has consolidated with the T. A. Shoemaker Co., under the name of the Eyre-Shoemaker Co., capital $250,000, with offices in the Arcade building, Philadelphia. T. Lawrance Eyre is president; A. B. Roecker, West Chester, secretary. Other men interested are T. A. Shoemaker, Bellefonte, Pa.; E. P. Harrison, Bel-Air, Md.; W. M. Pyle, Wilmington, Del. The company is engaged in general engineering projects, including bridge building for the Pennsylvania and Baltimore & Ohio railroads.

The following companies for the manufacture of iron and steel have been chartered by the state of Pennsylvania:

The Wirsing Brothers Hardware Co., Newcastle, capital $25,000, directors: H. M. Wirsing, J. H. Wirsing, L. D. Wirsing, Newcastle; T. R. Wirsing, Pittsburg.

West End Tube Works, Pittsburg, capital $25,000; directors: Henry Nutall and Daniel R. Shuler, Pittsburg and Joshua Nutall, Allegheny.

Forged Steel Wheel Co., Pittsburg, capital $20,000; directors same as Standard Motor Truck Co.

H. P. Gazzam Machine Co., Pittsburg, capital $20,000; H. P. Gazzam, E. A. Moore and K. Krumay, Pittsburg.

The Pittsburg Automatic Vise & Tool Co., Pittsburg, capital $25,000; directors: G. P. Blackiston, C. P. Hill and John McCartney Kennedy, Pittsburg.

The J. L. Hallam Co., Pittsburg, has secured a charter to manufacture charcoal. Its capital is $75,000 and the directors are John I. Porterfield, John L. Hallam and Joseph Braclan, Allegheny.

CRAMP'S ANNUAL REPORT.

The annual report of Wm. Cramp & Sons Ship & Engine Building Co., for the year ending April 30, 1906, shows net profits of $704,724, against $777,702 in 1905. Fixed charges, however, were largely decreased, and the surplus for the year, $370,972, is $56,807 more than in 1905, and is equal to 6.08 per cent on the capital stock. Assets of the company are $16,562,249 against $16,385,689 a year previous.

President H. S. Grove, in his general statement, calls attention to "the extremely unsatisfactory condition in the ship building business in the United States, due to the small volume of business offered and the number of yards competing therefor." Net profits from the allied companies, it is stated, are more than adequate to pay the year's proportion of reduction in bonded debt and meet the demands of expanding business for tools, machinery and improvements.

Charges of Fraud.—Allegations of fraud are contained in a bill recently filed in the United States circuit court at Chicago against the Flagler Iron & Steel Co. by Alfred S. Costello, H. H. Costello, Harvey Cheney and Robert Cheney. The bill is for the recovery of claims aggregating $90,000 and is directed against Harvey K. Flagler, who is named as president of the company; Willis P. Dickinson, treasurer; F. H. Head, W. R. Dickinson, Frank A. Helmer, John A. Clancy and George E. Simpson. It is stated, however, that Mr. Flagler has been succeeded as president by F. H. Head, and that W. R. Dickinson severed his connection with the company some time ago.

WILL BUILD WHEEL PLANT.

The Dickson Car Wheel Co. of Houston, Tex., has purchased a plot of ground 1,500 ft. long by 250 ft. wide, upon which it is to erect a complete new plant, consisting of car wheel foundry, general foundry and machine shop, all fire proof and of modern construction. Plans have been practically finished and the company is ready for bids on the building and machinery for the car wheel foundry, the capacity of which will be 400 wheels per day. The idea is to make this the most modern wheel plant yet built. The building will be approximately 320 x 150 ft., to be built with concrete wall up to 3 feet above ground, then 15 feet of continuous sash, then 2 feet of tile or concrete, with tile roof. The inside of the structure is to be entirely of steel, no woodwork to be used whatever. Either a 96-inch or 102-inch cupola will be used to receive blast from a positive blower, electrically driven, direct connected. Hot iron and hot wheels are to be handled on an electrical surface tram. Floor hoists will be hydropneumatic. These will have two-way power, i. e., giving hoisting and lateral motions. The floors themselves will be straight line. Sixty annealing pits will be required at the start, with a capacity of 200 wheels each, and will be in straight line with hoisting apparatus to be either electrical or pneumatic. Two 3-ton elevators of modern and economic type, one 10-ton reservoir ladle, geared to be run by electricity, necessary tracks, 30-inch gauge, turn tables, etc., will be needed. The power plant will consist of one steam-driven air compressor, same to deliver 1,000 cubic feet of free air per minute with 120 pounds pressure at tank, or two machines having same capacity; two air receivers having an approximate capacity of 600 cubic feet each; one 220-H. P. generator, alternating current and 110 volts;. one 200-H. P. engine, Corliss type; four water tube boilers of 100 H. P. each; one heater with sufficient capacity for the four boilers; two feed water pumps, each with capacity of 400 H. P., and necessary motors for machinery enumerated. In all cases where possible machinery will be direct connected. Quotations are sought f. o. b. Houston and where practicable for equipment to be erected and turned over.

Albert Sauveur, editor and publisher of the *Iron and Steel Magazine*, has sold his publication to the Electro-Chemical Publishing Co., and it will hereafter appear under the title of *Electro-Chemical and Metallurgical Industry*, with offices at 114 Liberty street, New York.

PERSONALS.

Patrick McManus has resigned as superintendent of the steel casting works of the Sharon Foundry Co., at Wheatland, Pa.

Floyd Knowles has resigned as superintendent of the Portsmouth Steel Co.'s plant, which hereafter will be in charge of N. V. S. Wilson.

T. J. Best, for many years connected with Warden King & Son, Ltd., Montreal, has secured a half interest in the National Tool & Axe Works, Three Rivers, Que.

George I. Rockwood, of Worcester, Mass., has been appointed head of the department of steam engineering at the Worcester Polytechnic Institute, of which he is a graduate.

F. G. Folsom, of Brooklyn, has been made general superintendent of the Joliet Steel Construction Co., with H. Harris Atkins, of Philadelphia, as special concrete engineer.

E. M. White, for many years foreman of the Gainesville Iron Works, Gainesville, Ga., has accepted a similar position with the Athens Foundry & Machine Works, Athens, Ga.

T. M. Caldwell has been made superintendent of the Ensley furnaces of the Tennessee Coal, Iron & Railroad Co., in place of J. W. Shook, resigned. He has been in charge of the Oxmoor furnaces, Oxmoor, Ala.

W. H. Whiteside, president of the Allis-Chalmers Co., accompanied by his wife and daughter, sailed June 19 on the Caronia for a recreation trip of several weeks in England, Germany, Switzerland and France.

C. A. Robinson, district manager of the American Sheet Steel & Tin Plate Co., gave a banquet June 16 to the heads of departments of the Wheeling plant in celebration of the record-breaking run made during May.

Rudolf Wiegelin has resigned his position with the Bessemer Foundry & Machine Co., Birmingham, Ala., and on July 1 will be associated with the Payne & Joubert Machine & Foundry Co., as general foreman of the foundry department.

J. M. Shenk has been elected vice president of the Lebanon Valley Furnace Co., with George E. Meily as secretary and treasurer. General Grubb continues as president. This reorganization was made necessary by the recent death of Richard Meily, treasurer of the company.

Joseph C. Clutts, the Wellston iron man, who is now associated with a company operating a new furnace at Detroit, has located in that city. Porter McMillin, another Wellston business man, is manager of the plant.

J. E. Johnson Jr., for several years assistant manager and engineer of the Longdale Iron Co., Longdale, Va., has assumed the position of general manager of the Princess Furnace Co., Inc., Glen Wilton, Va.

H. E. Rice, who recently left the superintendency of the rod mill department of the Dominion Iron & Steel Co., Sydney, N. S., to accept the general superintendency of the Atlanta Steel Hoop Co., Atlanta, Ga., has taken up his new duties at that place.

D. W. Bartholomew has resigned as secretary and treasurer of the Beaumont Iron Works, Inc., Beaumont, Tex., after 16 years' connection with the company. W. F. McKee succeeds him, and C. R. Greeves has been made assistant secretary and treasurer. Mr. McKee also succeeds to the directory board.

Mrs. Nannie H. Kelly of Ironton, who has the distinction of being one of the few, if not the only, woman in the United States successfully managing a furnace property and selling her own goods in the market, has launched the Superior Portland Cement Co., which takes over the Center Furnace Co. property back of Ironton and will install a plant of 2,000 barrels daily capacity, to cost $400,000. The capital stock is $525,000 and has been disposed of, among the stockholders being Justice Collins of Charleston, W. Va., M. L. Sternberger, of Jackson; Eugene Zimmerman, of Cincinnati; C. J. Milton, of Cincinnati; J. A. Rhinehan, of New York; J. A. Lathin, of Charleston, and Mrs. Kelly.

Several appointments are announced by the Power & Mining Machinery Co., Milwaukee, Wis. W. A. Lieblein, for a number of years manager of large Cripple Creek mining properties, and recently representing the Rand Drill Co., becomes manager of the Salt Lake City branch with offices at 215 Commercial Club building. W. C. MacDowell, formerly connected with the mining department of the New York office, has recently been appointed manager of the El Paso, Tex., office, looking after the interests of the company in Old and New Mexico and part of Texas and Arizona. Mr. MacDowell for a time represented the American Smelting & Refining Co., but has been connected with the Power & Mining Machinery Co. since 1903. He is a practical mining man. N. B. Roper, formerly chief engineer for the Cananea Consolidated Copper Co., Cananea, Mex., becomes mining engineer at the New York sales office of the company, 52 William street.

OBITUARIES.

Gregor Menzel, a prominent foundryman of Minneapolis, died recently at Tacoma, Wash.

Eben Byron Smith died June 22, at Chicago, age 76. Until recently he was a member of the firm of the E. P. Smith Wire & Iron Works.

Eldridge G. Rote died suddenly June 19 at his home in Muskegon, Mich. He was a native of Ohio, where he learned the trade of a machinist. In 1868 he established the Bay City Iron Works, of which he was treasurer for 15 years, and on going to Muskegon in 1883 organized the Lakeside Iron Co., the presidency of which he held for nearly 20 years.

Charles Newton, president of the Newton Machine Tool Works, Inc., Philadelphia, died recently at Bremen, Germany, where he had gone in search of health. He was born at Cambridge, N. Y., Feb. 9, 1846, and early became an apprentice at the Brooks Locomotive Works, Dunkirk, N. Y. In 1876, with J. D. Cox, he located in Cleveland, and there the firm known as Newton & Cox began the manufacture of twist drills and other tools. Four years later his interest was purchased by Mr. Cox, who formed the Cleveland Twist Drill Co. Mr. Newton then went to Philadelphia, where he laid the foundations of the present Newton Machine Tool Works, Inc., and where he himself designed the first heavy railroad tools. The business expanded rapidly, and under his direction the first successful machines for sawing metal cold and a number of other new tools were brought out. He was the sole proprietor of the works until their incorporation in 1897.

Alabama Coal Output.—A remarkable increase in the number of mining machines employed and the amount of machine-mined coal produced was one of the notable features of the Alabama coal industry during 1905. There were 196 machines in use in that year against 141 in 1904, and the tonnage mined in this manner increased from 741,170 tons to 1,786,474 tons. The total production of the year, according to the United States Geological Survey was 11,866,069 short tons valued at $14,387,721. The returns show that 19,595 were employed at an average of 225 days. Most of the larger mines were operated on a ten-hour day.

The Catasauqua Castings Co. is the name of a company granted a charter to operate a plant in Lehigh county, Pa. Its capital is $50,000, and Richard O. Kohler is treasurer.

THE MANUFACTURE OF CEMENT FROM BLAST FURNACE SLAG.

(BY AN EDITORIAL REPRESENTATIVE OF THE IRON TRADE REVIEW.)

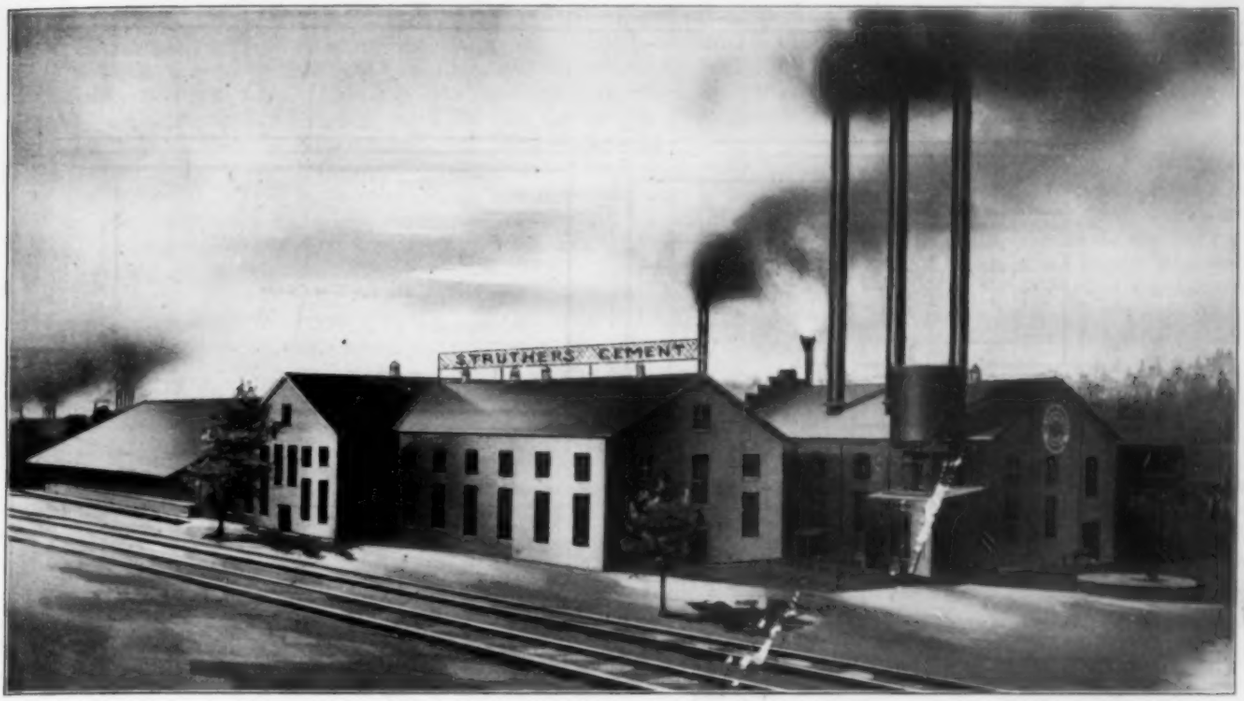


FIG. 1.—THE SLAG CEMENT PLANT OF THE STRUTHERS FURNACE CO.

The Struthers Furnace Co., Struthers, O., something over three years ago, established a slag cement plant in connection with its blast furnace. The plant, at first, was housed in one building, but after a short period of operation this was destroyed by fire. The company immediately rebuilt the plant, making it of absolutely fireproof construction. Struthers cement block curtain walls were used in all the buildings, with metal roofs, and the use of wood was reduced to a minimum.

The plant is located on the line of the Pennsylvania railroad and between the tracks of the Pennsylvania and the Pittsburg & Lake Erie railroads, the latter being about a quarter of a mile distant, a spur of track running from it to the plant. It was erected by the Osborne Engineering Co., Cleveland. The conveying machinery was furnished by the Jeffrey Mfg. Co., Columbus, O.

The general arrangement of the works is shown in the illustration, Fig. 3. Four main buildings comprise the plant, three of them adjoining each other, while the fourth, the warehouse, is separate. The main building, containing the dryers, hydrating beds and the tube mills for grinding the cement, is, approximately, 125 x 75 feet. Adjoining it at one end is the power house, 112 x 45 feet, and at the other end a building, 75 x 45 feet, which contains the Griffin mills, which reduce the slag to a fine powder.

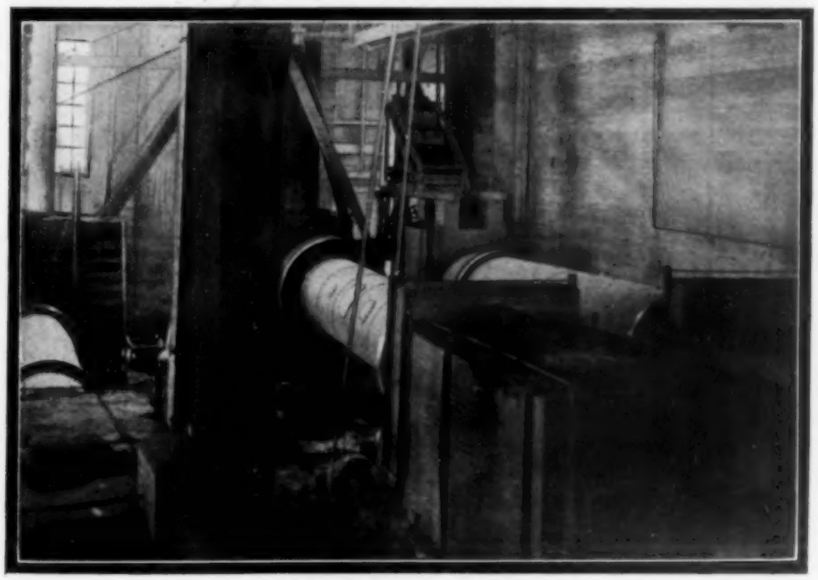


FIG. 2.—DRYING KILNS FOR SLAG.

The works are located about 1,500 feet from the blast furnace, and the slag is brought from the latter in steel hopper cars. The slag must conform to a certain analysis, or else it is not suitable for use in the production of cement. This throws the genesis of the cement business beyond the blast furnace and back to the ore mines, the ore being selected with a view of producing a slag which will fill the required conditions. The following table shows the approximate analysis to which the slag must conform in order to be used in the manufacture of cement:

Analysis of Slag.

Silica	31 to 34 per cent.
Alumina	12 to 15 per cent.
Lime	46 to 49 per cent.
Sulphur (extreme limit)	1.3 per cent.

Those in charge of the blast furnace have, by long practice, been able to determine from the appearance of the slag whether it is suitable for use in the cement plant or not. Their judgment is confirmed, in all cases, by an immediate analysis of the slag in the furnace laboratory.

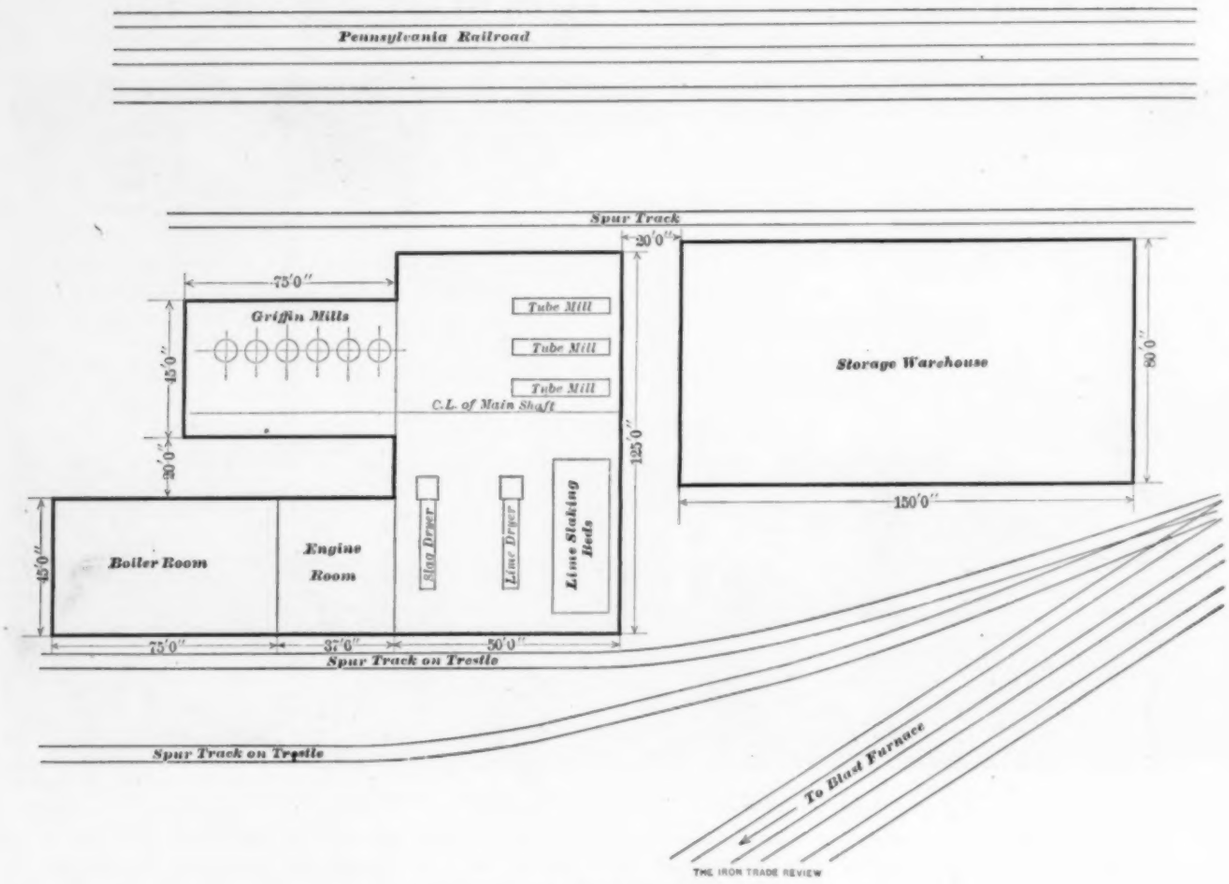


FIG. 3.—PLAN OF STRUTHERS CEMENT PLANT.

Adjoining the blast furnace are two circular pits about 25 feet in diameter and 10 to 15 feet deep. Into one of these pits slag that is suitable for cement manufacture is run, and into the other slag which must be disposed of as waste product. As the slag runs from the gutter into the pit, it falls through a spray of water which flows from a 4-inch pipe, the end of the pipe being flattened to discharge the water in a wide, flat spray. This granulates the slag into comparatively small pieces, which are easily handled. A locomotive crane removes the slag from the pit and loads it on hopper cars, which are then transferred to the cement plant.

The spur track delivers the cars on a trestle at one end of the main building, the trestle being at an elevation of about 14 feet above the floor. The slag is dumped into a hopper underneath the trestle and a screw conveyor moves it into the building. This conveyor delivers it to an elevator which raises it to an elevation of about 25 feet above the floor of the building and discharges it over a vibrating screen, which removes all pieces larger than ¾-inch.

The fine material passes through a chute into a battery of dryers, which are located as shown in the plan, Fig. 3, and which are fired at the far end. These two dryers are of different sizes, one being 72 inches in diameter by 36 feet and the other 52 inches in diameter by 30 feet in length. The smaller one is set on an incline to facilitate the passage of material from one end to the other, and the larger is provided with flights on the interior, which serve the same purpose. A coal fire built in the furnace at one end expels all the moisture from the slag. The gases pass completely through the dryer and out the stack situated at the receiving end.

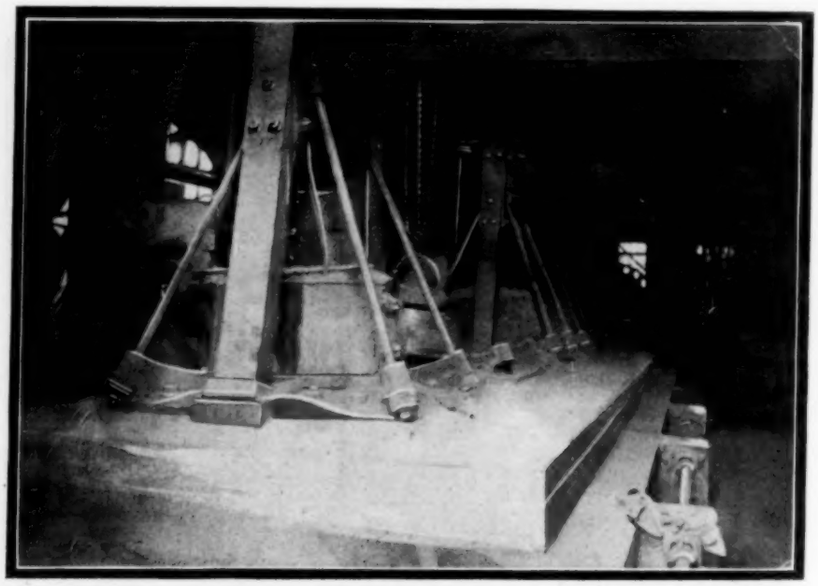


FIG. 4.—GRIFFIN MILLS.

The red hot slag leaving the dryer drops into a screw conveyor which moves it to the opposite side of the building, whence it is elevated to the roof trusses and carried along by another screw conveyor which delivers it into any predetermined Griffin mill bin.

Over the Griffin mills are storage bins into which the material is delivered, and from which it can be fed into the mills as desired.

The mills themselves are of the vertical type, and are shown in the illustration, Fig. 4. In this mill, a heavy pestle is suspended in a mortar. The pestle is loosely and eccentrically suspended from the vertical shaft, by which it is driven, and, while it rotates in one direction, it revolves around the circumference of the mortar in the opposite direction. After the slag has been reduced to fine particles in the Griffin mill, it is discharged into a screw conveyor, which runs along below, and back of the row of mills.

FIG. 5.—FLINT PEBBLE USED IN TUBE MILLS, FULL SIZE. THE SMALLER PIECES ARE THE SIZE TO WHICH IT IS BROKEN IN SERVICE.

Experiments are under way at the plant to determine the feasibility of using crushing rolls instead of the Griffin mills for pulverizing the slag. A set of these rolls is installed under the storage bin used for the Griffin mills, but at a considerable elevation above the floor. No slag can be discharged directly into the rolls or into the conveyor to the Griffin mills. The experiments have not yet been concluded, and nothing can be said as to their outcome.

At the end of the screw conveyor, there is an elevator which raises the material into one of three pairs of bins, which are situated above the three Gates tube mills. In these mills, the slag powder is ground with the lime to form cement. The location of these mills is shown in the plan view, Fig. 3. The tube mills are 5 feet in diameter and 22 feet long, and run at 27 revolutions per minute. Their capacity is 18 barrels each of cement per hour. Into these are introduced the lime and slag, and a number of flint pebbles which are imported from Denmark. One of these pebbles is shown in the illustration, Fig. 5, the larger piece being the actual size of the pebble when it is introduced, and the smaller pieces the sizes to which the pebbles are broken and worn in their service in the mill. About nine sacks of these pebbles are placed in each mill every week. The action of these pebbles is to grind the material to powder. The cement gradually works its way from one end of the mill to the other, being discharged into the screw conveyor which conveys it underground to a warehouse, whence it is elevated into another screw conveyor, running under the roof of the warehouse, which discharges it at any predetermined point.

A description of one step of the process has been omitted heretofore, namely, the hydrating and handling of the lime, which is a constituent of the cement. The lime bins and beds are shown in the illustration, Fig. 7. An inclined flight conveyor runs from underneath the trestle and over the lime bins, and discharges the unslaked lime into any desired bin. It is withdrawn from the bins through gates at the bottom, and discharged onto two beds underneath. A workman and helper wet this lime down with a hose, allowing it to remain on the bed for a period of about ten hours, after which a system of elevating and conveying machinery handles it to a bin over the tube mills, into which it is finally fed. The slag and the lime do not come in contact with each other until they meet in the tube mills.

The mechanical features of the plant

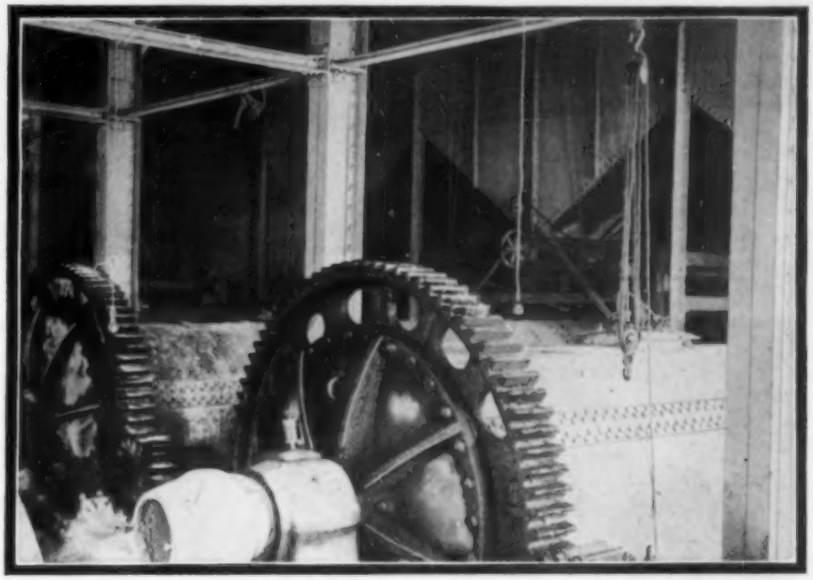


FIG. 6.—TUBE MILLS AND SLAG AND LIME BINS FOR FEEDING MILLS.

are somewhat interesting. Steam is supplied by a battery of three 200-horsepower Stirling boilers. Power is furnished by a 600-horsepower cross compound, non-condensing, Allis-Chalmers Corliss engine, running at 78 revolutions per minute.

The dimensions of the cylinders of this engine are 22 x 32 x 42 inches. A 17-foot fly wheel with 6-inch wood lagging is mounted between the two sides of the engine, and by means of a 22-strand, 1¼-inch transmission rope on the Dodge system drives the main shaft in the mill. This latter extends the entire length of the plant, as shown in Fig. 3. It is 6½ inches in diameter at its largest portion, and steps down to 4½ inches at each end. It is mounted at an elevation of 9 feet 6 inches above the floor, and is carried on concrete pillars, as shown in Fig. 7. These pillars are massive monoliths, being 7 feet wide at the base and 4 feet

at the top. Some of them passed through the fire without injury, while others were broken off and have had new portions built on them.

The shafts of the Griffin mill are vertical, and the mills are driven from the main line shaft by a series of quarter turn belts. The tube mills are driven from the main line shaft through countershafts, which are geared to the mills. The conveyors and elevators are all driven from countershafts which in turn are driven from the main shaft.

The service in the mill is particularly severe on the elevating and conveying machinery. Belt conveyors cannot be used in some cases, as the material is red hot. Flight conveyors would choke up and soon be put out of service. The screw conveyors used come nearest to fulfilling the conditions, but even these are not very durable. New flights are required at short intervals. The problem of making cement being mainly one of handling material, the arrangement of the conveying machinery is extremely ingenious and interesting.

Continuous samples are taken from the cement as it is delivered from the tube mills. These samples are taken to the laboratory adjacent, made into briquettes and tested to destruction at varying intervals, ranging from twenty-four hours to two years. The briquettes are kept in water whose temperature is maintained at as near 70 degrees Fahr. as possible, while waiting to be tested. The analysis of the cement taken at random from a number of analyses in the records of the laboratory is as follows:

SiO_2	30.40 per cent.
$Al_2O_3+Fe_2O_3$	12.86 per cent.
CaO	50.30 per cent.
S	0.80 per cent.

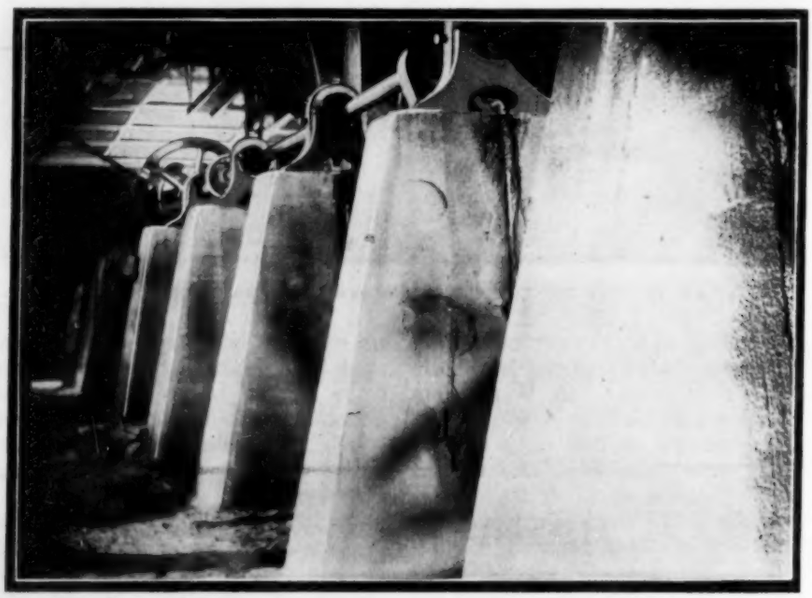


FIG. 8.—CONCRETE PILLARS SUPPORTING MAIN LINE SHAFT.

BOOK REVIEWS.

"Tables for the Use of Blacksmiths and Forgers," by John Watson. New York. Longmans, Green & Co. 6¼ x 4½ inches. 88 pages. Cloth. Supplied by THE IRON TRADE REVIEW for 90 cents.

The author in this work has compiled a series of tables, which show results of nearly every possible drawing down or staving operation. In addition, they show the hoop lengths and the weights of iron and steel bars for a large range of sections. Instructions are also given on estimating weights. The book is extremely useful to those engaged in blacksmithing work, as it enables the smith to cut off a piece which will be neither too long not too short, when completed.

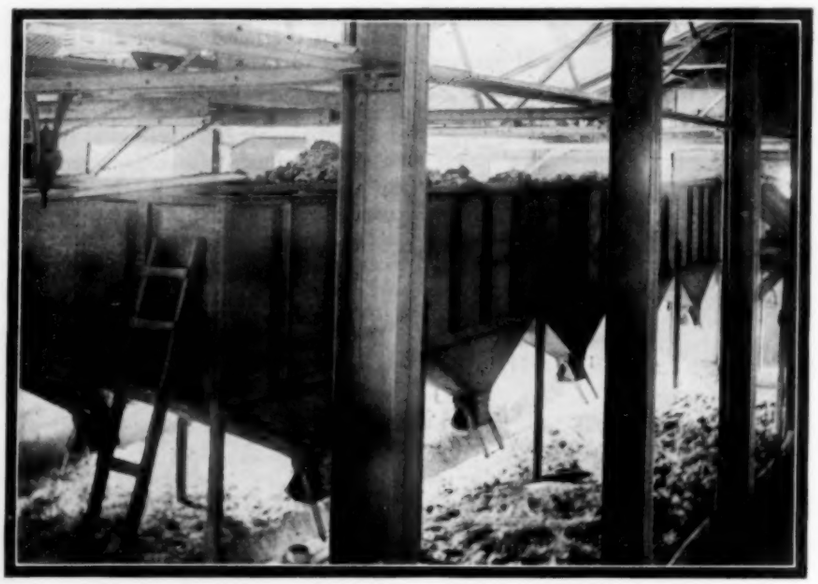


FIG. 7.—LIME BINS AND HYDRATING BEDS.

ABRASIVE MATERIALS.

The United States Geological Survey is about to publish its annual report on the production of abrasive materials during 1905. The report takes note only of that small part of the production of these materials which is actually used for abrasive purposes.

The aggregate value of the production of the natural abrasive materials during 1905 was $1,427,780, which is an increase of $20,679, as compared with $1,407,101, the vaue of the 1904 production. This includes oilstones and scythestones at $244,346, grindstones and pulpstones at $777,606, buhrstones and millstones at $37,974, pumice at $5,540, infusorial earth and tripoli at $64,637, crystalline quartz, including feldspar, at $88,118, garnet at $148,095, and corundum and emery at $61,464.

The value of the artificial abrasive materials—such as carborundum, crushed steel, and alundum—manufactured during 1905 is estimated at $701,400, as compared with the estimated value of $830,926 of the 1904 production, a decrease of $129,526. This, however, is a large increase as compared with $493,815 in 1903, and with $390,245 in 1902.

The New Home Sewing Machine Co., of Orange, Mass., organized under the laws of Massachusetts with a capitalization of $300,000, has been reincorporated with greatly increased capital stock. A new corporation has been formed with an authorized capital of $3,000,000, of which $1,000,000 is six per cent cumulative preferred and $2,000,000 common. The preferred has also a preference as to assets and may be called at $110 per share. The par value of both issues is $100.

ELECTRIC FURNACE METHODS OF IRON AND STEEL PRODUCTION.—I.

BY JOHN B. C. KERSHAW.[1]

In the year 1879, the late Sir William Siemens of London patented a crucible form of electric furnace.[2] In this furnace he was able, with comparative ease, to melt 10 kilograms of iron or steel by aid of the electric current in one hour. Fig. 1 shows the general arrangement and design of this earliest crucible furnace for steel melting.

Basing his estimate of costs upon the results obtained by experiments with this furnace, Sir William Siemens claimed that the electric furnace method of melting steel might be regarded as equal in heating efficiency to a regenerative gas furnace, since in each case the ton of steel required the equivalent of one ton of coal or coke.

But the electric furnace had other advantages in its favor not shared by furnaces using solid or gaseous fuel,—chief of these being, that the atmosphere of the furnace was uncontaminated with products of combustion; that practically any degree of heat could be obtained *in the charge* of steel within the furnace, and that this heat could be easily controlled by regulation of the electric current. On these grounds, the designer of this earliest form of electric crucible furnace prophesied that electric heating would become of considerable importance in the iron and steel industry of the future.

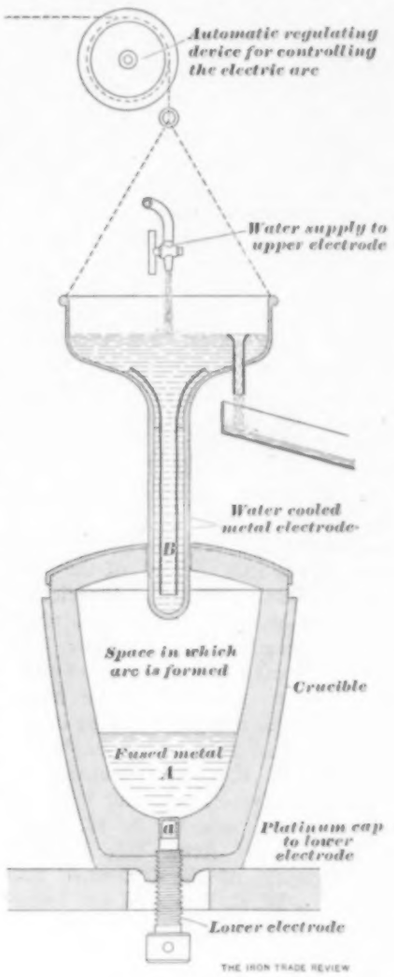
Twenty years elapsed before any progress could be reported, in the direction indicated by the late Sir William Siemens. But in the meantime, much important work was carried out by the brothers Cowles, Hall, Wilson and Acheson in America, by Heroult and Girod in France, by Borchers and Kiliana in Germany, and by De Laval in Sweden, bearing upon the practical applications of electric heating in the production of aluminum, calcium carbide, carborundum, graphite, ferro-alloys and zinc.

Moissan's researches—although confined to the laboratory—must be mentioned in this connection, for this famous French chemist's work with the electric furnace has become of classical value and importance.

In these laboratory and works trials of the electric furnace, much valuable information relating to the use of electricity for heating purposes was gained. The best methods of controlling the large currents used, and of arranging the electrodes so as to minimize their loss and destruction during the heating of the charge in the furnace were also worked out.

[1]West Lancashire Laboratory, Liverpool, England.
[2]English patent No 2110 of 1879.

In 1900, Heroult—who had patented and brought into successful operation in Europe the process of aluminum extraction associated with his name, about the same time (1889) as Hall patented and introduced a similar process in America,—turned his attention to the utilization of the electric furnace for the production of special alloys of iron and steel. A large number of trials were made at the works of the Societe Electrometallurgique Francaise (at La Praz, France)



SIEMENS ELECTRIC FURNACE.

with various forms and designs of furnace, the experience gained in the development of the aluminum process being of immense service to Heroult in this work.

Success attended this early experimental work of Heroult at La Praz, and from the production of ferro-alloys in the electric furnace to the manufacture of high-class steels was a natural development of his process. Attempts to smelt iron ore directly, by aid of electric heat, were made about this date, but were not so successful, and Heroult from 1901 to 1905 confined himself chiefly at La Praz to the production of special steels, using scrap and pig as the starting point of his process. In this same period Stassano in Italy, Keller, Harmet and Gin in France, and Kjellin in Sweden were working along the same lines, and each of these electro-metallurgists had attained some degree of success in the production of special steels by the new method of manufacture. In America, Conley, Rossi, Ruthenberg and Wilson were also experimenting with the applications of the electric furnace in the iron and steel industry. Early in 1904, these methods had became of sufficient importance for the Canadian government to think it worth while to appoint a commission of experts to proceed to Europe to examine their working, and the report of this commission published at the end of 1904 attracted much attention from metallurgists in all countries.

The present position of these various electric processes for the electric production of iron and steel is as follows:

The Heroult steel furnace is being operated at La Praz and Froges in France, at Kortfors in Norway, at Remscheid in Germany, and at Syracuse in the United States, in each case the plant being designed for the industrial production of steel from pig iron and scrap, while at Sault Sainte Marie in Canada, experiments have recently been conducted with the Heroult furnace for the smelting of iron ore. These latter experimental trials were carried out at the expense of the Canadian government, under the personal charge of Heroult himself, and the results obtained are stated to have been of considerable promise and value—as regards the building up of a new center of the iron and steel industry at Sault Sainte Marie, in Canada.

The Keller furnace and process for steel production are being operated upon an industrial scale at Livet and at Kerrousse in France, and a large firm of French steel makers (Messrs. J. Holzer & Co.) has decided to give the same process trial at its works at Unieux (Loire). This plant is to be operated by steam power, and will utilize 1,500 horsepower. In May, 1905, it was in course of erection, and by this date it is probably in operation.

The Keller furnace for smelting ore is also in use at Livet, but it is not clear whether it is yet working upon a commercial basis.

The Gin furnace and process are now undergoing trial upon an industrial scale at Plettenburg in Westphalia, Germany, but it must be considered doubtful whether this furnace and process have yet emerged from the experimental stage of their development.

The Stassano process and furnace first received trial in 1900-1901 at Rome, and later at Darfo in northern Italy. These experiments, however, exhausted the funds of the promoting syndicate, without

any decided success having been obtained. The furnace and process are now receiving further trial at the Royal Arsenal, Turin, under government assistance and control. This process, also, must be regarded as still experimental in character.

The Kjellin process and furnace have been operated at Gysinge in Sweden since 1901 with considerable success, and arrangements have been made for the operation of this furnace and process in Switzerland, in the United States, and in England.

The Conley, Wilson and Rossi methods of iron and steel production are still in the experimental stages of their development, but possibly these and others may develop into processes of some importance at a later date. *The Ruthenberg process* appears to have failed, judging from the tenor of some recent reports upon it.

Many thousands of tons of steel, and several hundreds of tons of iron have been produced by the more successful and practical of these new electric furnace processes since the experimental trials were commenced in 1900. This fact taken in conjunction with the extended scale upon which certain of the processes are now being worked, renders it important that iron and steel manufacturers should devote careful consideration and attention to this new development of electro-metallurgical industry.

In the following articles the furnaces and processes will be dealt with in the following order:

Article II. The Heroult Furnace and Process.

Article III. The Keller Furnace and Process.

Article IV. The Kjellin Furnace and Process.

Article V. The Stassano Furnace and Process.

Article VI. The Gin, Conley, Ruthenberg, Rossi and Wilson Furnaces and Processes.

Article VII. Yields and Costs.

The articles will be fully illustrated by diagrams and photographs of the various furnaces; the information contained in them will be as up-to-date as it is possible to obtain, and it is hoped that this presentation in serial form of much scattered information relating to the new electric iron and steel industry may be of considerable value to readers of THE IRON TRADE REVIEW.

Probably the only floating factory for the manufacture of lathes has been put in operation by David Vaughan, Capt. John Vaughan and Charles Borders of Catlettsburg, Ky., who have leased the steamer Guyandotte and installed a lathe cutting factory aboard the boat.

MANUFACTURERS' CLUB FOR CLEVELAND.

Cleveland is to have a manufacturers' club, if the sentiment in its favor manifested by members of the National Metal Trades' Association is found to be general among the other manufacturers of the city. At a dinner of the local Metal Trades' Association held at the Century club, June 20, with about 50 members and guests in attendance, the project of organizing a club was revived and thoroughly discussed. Some two or three years ago plans for such an organization were completed and considerable work was done but the project was not pushed at the time. The need of such a club, however, has become more apparent and the local metal trades members have taken upon themselves the rejuvenation of the enterprise with every promise of success. The club will be organized along the lines of similar organizations in other cities. The committee in charge is composed of W. B. Cowles, of the Long Arm System Co.; W. D. Sayle, of the Cleveland Punch & Shear Co., and M. D. O'Donnell, of the O'Donnell Elevator Co.

At the dinner Joseph H. Champ, of the Bishop & Babcock Co., acted as toastmaster, and responses were numerous. President Sayle, of the National Metal Trades' Association, talked on national issues, and urged a larger membership. Attorney J. P. Dawley pointed out the duty of manufacturers to see that public offices are filled with men who can be counted on to deal fairly with employers' interests. W. B. Cowles discussed the subject of organization, and brief addresses were made by A. W. Henn, of the National Acme Mfg. Co.; M. D. O'Donnell, of the O'Donnell Elevator Co.; W. C. Bruce, of the Bruce-Meriam-Abbott Co.; Isaac G. Haas, of the Empire Plow Co.; G. O. Cromwell, of the American Machine & Mfg. Co.; C. J. Snow, of the Macbeth Iron Co., and W. A. Comstock, of the Cleveland Wire Spring Co.

The local branch of the association was shown to be in flourishing condition, and two applications for membership were received.

Arrangements have been completed for the sale of the common stock of the Pocahontas Colliers Co. to the Pocahontas Consolidated Co. Kean, Van Courtlandt & Co. has issued a circular announcing the terms of the agreement which provides that all holders of common stock shall have an opportunity to sell their holdings at the rate of $33 in cash and $25 in common stock of the consolidated company.

WELSH TIN PLATE BUSINESS DEPRESSED.

The demoralized state of the Welsh tin plate industry is evidenced by a recent joint report of Daniel W. Williams and G. W. Prees, consuls at Cadiff and Swansea, as follows:

"It has been the custom to allow a holiday week in many of the mills some time in the midsummer, but the present depression in the tin plate trade has caused the masters and men of all the organized mills to hasten the holidays by six to eight weeks. The depression at this time has resulted in closing over 97 of the mills that were running at the beginning of the year, which has already reduced the production by about 25 per cent. Of the other mills, the majority are now running on day to day notices.

"The depression is of such a character that it is discussed very generally, and all sorts of views are expressed. Some seem to see in it only the result of overproduction, and the measures now resorted to are based in part on that assumption. It is generally conceded, however, that the increase in the price of materials, and of block tin in particular, the loss of the Russian trade occasioned by the disturbances in the oil fields of that country, and the levying of discriminating tariffs by many foreign countries, are affecting the trade very materially. The price of tin has now risen to $890 a ton, and it is freely predicted by experts that it will rise to $1,000. This boom is already having a beneficial effect in the Cornwall mining district. It is also causing a boom in tin prospecting in many parts of the British Empire. A preliminary report of the investigations in Nigeria has just been printed, showing that extensive finds of stream tin have been made. The output, however, is only about 36 pounds to the ton of gravel. The discovery of extensive tin deposits is eagerly hoped for.

"The loss of the Russian market has alarmed the trade, for it has revealed what may happen in case other markets may be lost. The possibility that Japan may enter the trade is already exciting some apprehension, and the effort to build up the tin plate industry in Canada must affect the Welsh trade injuriously. It is felt, also, that the repeal of the American rebate on tin plates would wipe out the entire American trade, which has been gradually disappearing ever since the McKinley tariff was levied. Much of the rebate is now received by a few large corporations, and it is this fact that occasions the belief that the rebate may be abolished. It may be noted also that the high price of block tin is affecting other industries in Britain, especially those interested in art metal ware into which tin enters.

"The depression concerns the men

more than the masters, for the wages are already almost at a minimum, and any appreciable reduction must produce bad conditions, just as the reduction in the wages of the slate men of north Wales has led to the emigration of many of them, some into the south Wales coal fields and many others to foreign lands.

"Tin plate stocks have accumulated both at the Swansea docks and warehouses, and at the works, and middlemen have been buying parcels during the last four or five weeks at sensational low prices, far below all possible cost of production, and leaving behind an unhealthy impression.

BRITISH WAGE SCALE.

Recent Developments Indicate Important Changes.—Eight Hour Shifts Discussed.

(Special Correspondence).

Birmingham, Eng., June 13.—The past few weeks have been interesting mainly from the wage point of view. The Associated Iron and Steel Workers have just published their suggestions for the new Midland scale, which has been under consideration for more than a year. It is known that for some months past the board has been receiving returns from firms who are in future to be the sources of information under the sliding scale. The results have just been published. Formerly the Midland prices averaged about £1 above those of the north. But all this is changed, the average difference, over four years, being only 10s 1d. For this there are various reasons, all tending to show how the character of both districts has changed. The practical effect of all this, however is that in future it is suggested there shall be a premium over equal shillings to pounds in the selling price of 2s, to give the rate of wages. At the same time, the men affirm the old principle that wages should be 6d more than those in the north in lieu of northern extras. This is a kind of fetish suggesting that the elaboration of a sliding scale is unnecessary, if this is to be the result. It is understood that the matter is to be discussed shortly by the board. As the present premium is 1s 6d, the 2s may provoke opposition, but the general expectation seems to be that it will be accepted.

At the conference of the Men's Union at Liverpool last week, it was decided to seek a conference with the British Steel Smelters' Association to consider the utility of joint action for obtaining an eight-hour shift. Generally speaking, all such efforts, in the finished iron trade have failed, except where, as at Messrs. Lyssaghts at Newport, the triple shift is adopted.

An advance of 3d per ton in puddlers' wages, making the rate 9s, has been declared, with a 2½ per cent advance for millmen, to continue for the next two months. In view of the check lately experienced in prices, it is doubtful whether further wage advances will be forthcoming. Most of the works are taking a week's holiday for Whitsuntide, but the tendency of trade at present is in the direction of recovery.

Defending British Methods.

There were some significant passages in the speech of Mr. F. D. Docker, chairman of the Metropolitan Amalgamated Railway Carriage & Wagon Co., at the annual meeting, which took place on Friday last. This is a huge concern, boasting of a profit for last year of £184,778, being £21,440 in excess of last year. The firm was able to pay a dividend of 10 per cent; placed £50,000 to the reserve fund, and carried forward £86,131. It boasts of a total expenditure on plant and machinery at the carriage works alone of £291,235, all of which has been out of revenue. The head works at Saltley have been practically rebuilt, and this establishment, it is now claimed, is the finest in Europe. During the general election somebody twitted this firm with being "one of the greatest sweating firms in the country" and the chairman referred to this, retorting that the men and boys earn an average of 30s per week. The chairman added, "I am confident we can work together for our mutual benefit, if we can be spared the interference of agitators, professional politicians, or any other enterprising but meddlesome gentlemen from outside." He went on to quote the following passage from a report by Mr. James Cox, secretary of the Iron and Steel Workers of Great Britain, issued by him shortly after his return from America as a member of the Mosley commission. Referring to the British iron trade slump in 1900 Mr. Cox said: "The pity is that several of them ever recovered. The British iron trade and the workmen in it would have been infinitely better off if an earthquake had swallowed up many of the obsolete works, and the manufacturers who bleed their works to death in times of good trade and grind their workmen in periods of adversity. Large trusts have their inherent defects, but I am convinced by my investigations that the workmen have less to fear in the long run from the operations of concentrated capital than they have from the impecunious employer, with his frantic efforts to dip into the wages of the already underpaid workmen." Mr. Docker applied the moral by pointing out that the works had been made as healthy and modern as money could make them; that workmen might labor under decent conditions, and in that respect they were second to none in the country. Mr. Docker will receive widespread support in his further plea for one long holiday in the year, instead of four or five short ones, which prove very expensive under the present system. The following directors were re-elected: Sir George Scott Robinson, and Messrs. L. C. Docker, W. L. Hodgkinson, W. Lee Mathews, and J. Tunstall Sanderson.

Henry Parry Dead.

Yet another gap has been made on the Iron Exchange by the death of Mr. Henry Parry for many years general manager of Lord Dudley's New Level Furnaces at Round Oak. He succumbed to a short illness from pneumonia. Ten days before his death he attended a meeting of pig makers on 'Change, and only five days before made a speech on his re-election as chairman of the Technical Institute of Brierley Hill. He was a former president of the Iron and Steel Institute, which was represented at the funeral by Mr. Somers, the president, and Mr. Carder, the secretary, with about eight members. Mr. G. H. Claughton, Lord Dudley's general manager, and Mr. George Hatton, the secretary, attended with a large body of workmen.

Short Chimneys.—The experiences of the recent earthquake have emphasized in a most forcible manner the marked advantages of the short steel stack which is all that is essential with a mechanical draft installation. Chimneys of the usual sort have everywhere proved to be immediate sources of danger. Their wrecking on all sorts of buildings in the stricken region was no inconsiderable factor in the general destruction. Most of the power stations around San Francisco came through in pretty fair shape, save for the stacks, thanks to the fact that most of the plants were fairly well built and did not carry their weights too high. After this experience tall chimneys may be counted on as pretty certain to go in a severe earthquake. On the other hand there is considerable to be said for short stack and forced or induced draft. This construction, which has entered into recent equipment in Japan, suggests still another of the advantages of this modern system of draft production.

In the nine months ending April, this country's foreign shipments of electrical machinery, instruments and apparatus increased nearly one million and a half dollars in value, the total exports of this line of goods during the period given being $10,391,735.

THE CONVENTION OF THE AMERICAN SOCIETY FOR TESTING MATERIALS AT ATLANTIC CITY.

The ninth annual convention of the American Society for Testing Materials held on June 21, 22 and 23, at the Hotel Chalfonte, Atlantic City, N. J., was in point of attendance and the number of papers discussed the most successful in the history of the society. Sixty-one papers were presented and the number of members present passed the 200 mark. The report of the executive committee showed a most healthy growth during the year, the society now having a balance on the right side of the ledger and the membership having grown so rapidly and steadily that a body numbering 1,000 active members was confidently predicted within the next twelve months. The work of the committees, the making of practical standards for testing the materials used in the various industries, will never be finished, but in all cases substantial progress was made. Committee "A," on specifications for iron and steel, had not yet reached a conclusion satisfactory to the society and will continue its labors for another year, probably with an organization simplified and rendered less unwieldy. The section of the association which deals with cement has grown to be a close rival of that portion representing the interests of iron and steel. The committees on protective coatings and on corrosion are still groping along the fringe of things but promise soon to reach something definite.

It is no disparagement of the gentlemen who presided over the various sessions to say that every one missed the stimulating presence of the president, Dr. C. B. Dudley, who has not yet returned from his trip abroad.

The headquarters of the American Society for testing materials are located in the office of Prof. Edgar Marburg, University of Pennsylvania, Philadelphia.

Opening Session, Thursday Afternoon.

Vice president R. W. Lesley opened the proceedings by dispensing with unnecessary details and taking steps to expedite routine business. It appeared—by the report of the executive committee—that three regular meetings and one special meeting of that body had been held during the year. The membership had risen from 677 to 835. For the first time in its history the society had reached a state of financial independence. This marked improvement is attributed to the growth of membership and to the effect of an amendment adopted last year making the American society independent of the International Society for Testing Materials. Among the publications issued during the year were the annual volume of proceedings, 565 pages, and various pamphlets and circulars.

The following new committees had been appointed by the executive committee to aid in the preparation of programs and the furtherance of committee works: Iron and steel, Wm. R. Webster, chairman, H. H. Campbell and and H. V. Wille; cast iron, Richard Moldenke, Henry Souther and Thos. D. West; cement and concrete, Clifford Richardson, Robert L. Humphrey and Spencer E. Newberry; brick and terra cotta products, Edward Orton Jr., H. O. Hofman and W. D. Richardson; preservative coatings, G. W. Thompson, Robert Job and S. S. Voorhees; tests and testing apparatus, Gaetano Lanza, Mansfield Merriman and Tinius Olsen. The list of technical committees had been increased as follows: Committee S, waterproofing materials; committee T, the tempering and testing of steel springs and standard specifications for spring steel; committee U, standard specifications and tests for wire rope.

Prof. Gaetano Lanza briefly outlined the purpose and the history of a pamphlet issued by the society and containing the memoirs of sixteen deceased American investigators who have contributed to the advancement of testing materials. The booklet is the work of Prof. Lanza and contains sketches of Alexander Lyman Holley, Dr. Robert H. Thurston, and other noted engineers.

Allerton S. Cushman presented a paper on the development of the test for cementing value of road materials. He explained that the cementing or binding action depended upon the decomposition of the surface of the particles, the decomposed material serving as the bond. The strength varies from that of clay through various kinds of rock to sand which has no binding value.

P. L. Wormley Jr., contributed notes on the test for hardness and abrasion of road materials, describing a new method for expressing results.

Charles F. McKenna, chairman of committee L on standard specifications and tests for sewer pipes, reported that the committee had sought information and had secured it from only one source.

Prof. Ira H. Woolson, chairman of committee P on fire-proofing materials, said that efforts during the year had been confined to collecting data on the use of concrete, but that few had been secured although requests for information had been published in a long list of technical journals.

The election of officers for 1906-1908 resulted in the re-election of all officers as follows: President, Charles B. Dudley; vice president, Robert W. Lesley; secretary-treasurer, Edgar Marburg, and for member of the executive committee, James Christie.

J. H. Kellogg read the report of Herman Von Schrenk, chairman of committee Q on standard specifications for the grading of structural timber. The report gave the details of defects which had been standardized, and presented a list of names of timber in the interest of greater uniformity in classification. The report was merely a progress report and had not been adopted by the committee.

Second Session, Thursday Evening.

In the evening the testing engineers assembled in the room on the ground floor which is more convenient for the use of the stereopticon. Secretary Marburg read a cablegram from Dr. Dudley expressing regret that he could not be present in person, also telegrams from other members who were unable to attend.

The president being absent and having left no formal address prepared by him, the presiding officer, R. W. Lesley, delivered what may be called a vice presidential address. His theme was the history and growth of the society, its purposes and its destiny.

The speaker divided the comparatively short life of the organization into three periods, childhood, youth and manhood. The first period extending from its birth in 1898 to 1902, was the period of beginnings when the tutelage of the parent body, the International Society for Testing Materials, was necessary and paramount. From the beginning there had been differences of opinion between the American body and that representing primarily the nations of Europe. The International society confined its attention to the science and methods of testing while American engineers wished to develop actual standards of specifications.

In 1902 the American branch was organized into a national body and its second period, that of growth in strength and usefulness began. The scope was broadened and instead of discussing only methods of testing, scientific papers on specification were accepted. The third period of the society's life began last year when it became a separate body, distinct from the international association. It is now self-sustaining and is growing rapidly

in importance as a clearing-house for the other scientific societies in America. As a proof of the esteem in which the society is held the speaker called attention to the fact that its president had been chosen by President Roosevelt to serve as chairman of a government advisory board representing the scientific societies of the country as well as the army, navy and the Panama canal commission.

J. W. Howard presented a paper illustrated by stereopticon views entitled "Concrete Column Tests at Watertown arsenal." The columns were reinforced in different ways, with vertical rods, with hoops and wire mesh, aged and tested to destruction in various manners, and the results shown in tabular form. The results seemed to indicate that in many cases the strength depends quite as much upon the composition of the concrete as upon the method of reinforcing.

T. B. Cummings exhibited a series of views of column tests made in Germany, and drew the conclusion from the results that spiral re-enforcing was from 2.5 to 2.8 times more effective than strengthening by means of vertical rods, which confirmed the ratio deduced by other means of 2.4 in favor of hoop, spiral or other lateral reinforcement.

Richard L. Humphrey furnished the most acceptable sort of entertainment to engineers in the form of a magnificent series of photographs showing the effects of the great earthquake in San Franciso. The views were accompanied by a talk explaining precisely the points likely to interest an engineer and for which one looks in vain in the papers and magazines. The views were an example to the builders, the worst constructed building invariably having suffered the most. Concrete structures when properly bound seem to have fared best in the vigorous shaking. Steel suffered little in the actual earthquake, but unless well protected it softened and buckled when subjected to the heat of the fire. Many examples of fireproof—thought to be perfect, were shown to have had no protective effect whatever.

Third Session, Friday Morning.

On Friday morning there were two simultaneous sessions representing iron and steel, and cement, concrete and asphalt, respectively.

In the iron and steel section J. P. Snow presented a paper on the corrosion of steel as affected by its chemical composition. He related the result of his experience in the matter of signal bridges built of steel and of wrought iron. In the center where the structure is subjected to the action of gases as they emerge from the locomotive stacks the steel was invariably more affected by rust in a given time than puddled iron. The reason for the difference could not be found in the fibrous structure of the iron, for cast iron, which is not fibrous, corrodes still less readily. Manganese was thought by many to hasten corrosion and phosphorus to retard the process. If this were the case, said the speaker, it would be better to make steel containing little or no manganese and to obtain its beneficial effects by some other means.

Maximillian Toch discussed the electrolytic corrosion of steel. He said that the corrosion of a piece of steel induced by an electric current depended entirely upon whether it happened to be anode or cathode. He described a series of experiments using plates of Sheffield steel which corrodes very readily. These were embedded in wet sand and connected with an ordinary crow-foot battery. The anode plate showed corrosion almost immediately while the cathode showed none. A trial with three similar plates, two connected as before and the third merely inserted in the sand, gave the same result except that the free plate showed corrosion intermediate in extent. Plates protected by pats of concrete were also tested, some with a coat of varnish between the steel and concrete. The conclusion from the experiments was that the concrete supplemented with varnish, gave almost perfect protection.

In opening the topical discussion of the corrosion of iron and steel Prof. H. M. Howe spoke of the popular belief that steel resists rust less effectively than iron. He cautioned against placing too much reliance upon popular opinion which was apt to be founded upon false or insufficient premises. The use of steel had become far more extensive than that of iron ever had been, and it had come in with the sulphurous acid in the air due to the combustion of enormous quantities of coal, and with the electric current. He spoke of the difficulty of the experimental test and the complexity of the problem and he thought that the results hitherto obtained had been drawn from experiments extending over too short a time. The piece should be tested to destruction.

The differences between iron and steel were next considered by Prof. Howe with a view to discovering a possible solution. Steel contains blow-holes while iron does not, and of manganese there is almost necessarily a larger proportion in steel. But the short tests hitherto made do not show that the manganese causes the difference in resistance to rust. An apparently promising suggestion lay in the fact that wrought iron contains a proportion of cinder while steel holds little plates of cementite. This might cause one piece to rust quickly in the beginning but allow the other to outstrip it as the decomposition progresses. Cinder might be the greater protection at first but the cementite might be more effective later or vice versa.

Allerton S. Cushman, returning to the subject of corrosion due to electrolysis said that no two pieces of steel were exactly alike and that the minute differences might set up a difference of potential and lead to irregular corrosion. While not a friend of either steel or iron he was convinced that there was an actual difference in corrodibility, and he thought the unequal distribution of impurities had much to do with the very irregular behavior of steel.

James Christie brought forward more evidence of the relative destructibility of steel. He had had experience with sheet metals and the difference could not be doubted. He admitted the unreliability of popular opinion but maintained that when it is so universal as in this case it could not be rejected entirely. He cited an instance of an old sheet iron roof which had outlasted another adjoining roof which had been replaced several times with modern material. It was now quite generally considered to be useless to employ black sheets for this purpose even when carefully painted.

Maximillian Toch saw a reason for the difference in resistance to rust of cast iron and steel in the skin of iron castings which always has a film of suboxide or some form of silicate.

J. P. Snow observed that different conditions altered the relative resistance of steel and puddled iron. In structures exposed to the action of sea water both materials behaved in about the same way, but in other situations especially when exposed to locomotive gases wrought iron is much more enduring.

Frank N. Speller declared it unsafe to draw hasty conclusions in the matter. Tests made under different conditions were not fair tests. He said that the National Tube Co. had been making experiments along this line with tube and pipe material and had obtained results which agreed fairly well with those of other laboratory experiments. Wrought iron had an advantage of only ten per cent or less. Service tests of locomotive boiler tubes showed that iron corrodes quite as rapidly as steel. Observations of material in pipe lines gave practically the same results. He believed that the

difference had been exaggerated in the popular mind.

In the general discussion which followed many interesting cases were cited. The casing of an oil well when removed after fifteen years' of service showed iron sections practically perfect while steel casings were unfit for further use. One speaker placed the blame upon a too extensive use of scrap. Another called attention to the influence of surface scale, giving as an example sheets used in the New York subway, some of which corroded at once while others remained as blue as when delivered from the mill. It came out in the discussion that the material used in the experiments made at Columbia University and mentioned by Prof. Howe, was "Spellerized" steel, a material prepared by the National Tube Co. by a special treatment to render the surface more resistant. The results showed a difference of fifteen per cent in favor of the steel.

Prof. Howe in summing up said that the burden of proof still lay with the steel makers, that the public would have to be convinced.

In presenting the report of committee F on heat treatment of iron and steel chairman H. M. Howe said that a mass of material had been gathered but that the results were not yet ready for presentation. In attempting to derive laws of nature it was necessary to go to lengths of precision neither practicable nor necessary in industrial work. He described the apparatus and methods employed to secure uniform temperature. The piece is enclosed in two concentric muffles and the heat is applied by radiation only.

Dr. William Campbell read a paper on the effect of heat treatment on high carbon steel, being a report of work done under the auspices of the Carnegie Research committee. Twelve steel bars containing different percentages of carbon were subjected to different degrees of heat. Heating to 760 degrees Fahr. gave the best results because it brought the material near the critical temperature. At higher temperatures segregation took place and later cementite broke down into graphite. At last over 1,200 degrees Fahr. the graphite disappeared and the cementite was converted into a very coarse condition.

James Christie inquired about the time of heating and asked whether the piece had been held at a high temperature for any length of time, referring especially to the modern practice of heating eyebars to a high temperature which is however not maintained. Other speakers suggested that in view of the fact that the theoretical experiments were conducted with relatively small bars of steel some account should be taken of time and mass. In practice there was a considerable lag and the necessity of pushing the heat beyond the temperatures established by theory.

In reply to a question whether cementite could be changed into graphite and back again in malleable practice Dr. Richard Moldenke declared such to be the case and gave an interesting case of castings straightened while hot and afterward found defective.

William Campbell explained that only one steel had one critical temperature all others being mixtures of two substances each having a critical point of its own.

Prof. Howe stated as a general rule that injury caused by overheating may be restored by further heating provided that the injury has not gone to the extent of producing cracks in the piece.

In the meantime the section on cement and concrete had been at work upon various questions including: the report of committee I on reinforced concrete, U. E. Turneaure, chairman; and the following papers,—Tests of Reinforced Concrete Beams, Gaetano Lanza and S. J. Tilden; Note on Compression Tests of Cement, W. P. Taylor; Consistency of Concrete, Sanford E. Thompson; The Constitution of Portland Cement, Clifford Richardson; Progress Made in the Investigation of Structural Materials During the Year ending June, 1906, R. L. Humphrey.

Fourth Session, Friday Afternoon.

The section on iron and steel spent a considerable portion of the afternoon in a prolonged discussion of the work of committee A, the report of which was presented by its chairman, W. R. Webster. Standard specifications for iron and steel seem no nearer adoption by the society than before but, as pointed out by one or more of the speakers, the question is of such importance and difficulty that conservative action is imperative. The entire matter was referred back to Committee A for further consideration.

Secretary Marburg read portions of the report outlining the work of the committee during the year in trying to harmonize the specifications of the society with those of the American Railway Engineering and Maintenence of Way Association and the American Society of Civil Engineers. The committee had not seen its way clear to the adoption of more rigid specifications for steel rails in regard to the drop test, the discard, the chemical composition and straightening, and presented reasons for and against the proposed changes. It was also decided to make no change in the specifications for bridge and structural materials.

In the discussion of the question whether a test be taken from each blow or from every fifth blow, Robert Job saw no reason for the limitation of the test to a single blow in five since such a test could not represent the whole.

In the general discussion James Christie said the society should be very careful in the adoption of specifications not in harmony with those of other societies, and that the adoption of discredited standards would inevitably lead to the discredit of the society before the public.

Robert Job's motion to refer the matter back to the committee prevailed. W. R. Webster, chairman of committee A protested. He said the committee had done everything in its power, and that it was impossible to harmonize the varying requirements of conflicting interests. He asked for a reorganization of the unwieldy committee, a matter which was referred to the executive committee.

E. P. Stratton gave an outline of the work of the committee in regard to the specifications for ship materials, and read the specifications adopted some years ago by American shipping interests.

W. R. Webster asked whether it would not be better to adopt the specifications of the British Lloyds for both bridge and ship materials. He said the bridge interests are constantly calling for higher limits and the difference was very slight in any case.

Prof. H. M. Howe suggested for the general consideration of the society that it might be well to establish a test for the worst part of the ingot of steel, in the axis where the greatest amount of segregation occurs. He said that as tests were now taken from various parts, why not seek the most undesirable portion and determine how bad the worst part may be allowed to be?

Returning to the suggestion of Mr. Webster, W. A. Bostwick thought the society should by all means adhere to American standards, and that the Lloyd specifications were for British use and not American.

E. P. Stratton endorsed this view and spoke of the disadvantages under which the American shipping interests are now laboring. He said the protective tariff policy was directly antagonistic to shipping and if the American merchant marine were to exist at all the government would have to grant some aid after the ship had been placed upon the water.

W. R. Webster suggested that it might be well to adopt chemical specifications which would be an advance over the English standards. The question of specifications for ship materials was referred to the executive committee.

Max H. Wickhorst read portions of an extensive paper on "Firebox Steel—Failures and Specifications," which is a compilation for the convenience of engineers.

C. L. Huston exhibited a series of stereopticon views showing the segregation of steel ingots in its relation to plate

specifications. Only flat ingots of soft steel and bottom-cast were used in the experiments described. The ingots were cut down to show different portions. A distinct zone of holes appeared about equidistant from the surface. There the gas bubbles had been arrested when the steel had become too stiff to permit motion. Tables showing analysis and tests of specimens from different parts of the ingot were included in the series. In rolling, the speaker explained the holes disappeared whenever they were free from dirt and oxide which was usually the case.

In the discusion which followed, the demand for constantly higher carbon steel from boiler and bridge men was condemned. The softer steel suffered less in the process of punching and was better able to resist sudden and severe shock, and in any case the factor of safety was sufficiently high to render the softer material more safe.

Prof. Marburg handed to the stereopticon man a slide showing committee A still in action fifty years hence. The members were all easily recognizable upon the screen notwithstanding the universal resemblance to Rip Van Winkle, for each was carefully labeled.

The program of the section on preservative coatings in separate session during the afternoon contained the following subjects: Report of Committee E on preservative coatings for iron and steel, S. S. Voorhees, chairman; Protective Coatings for the Preservation of Steel, Arthur B. Harrison; Practical Testing and Valuation of Japan, Robert Job; and Testing of Shellac Varnish, A. C. Langmuir.

Fifth Session, Saturday Forenoon.

The session of the section on metals and fuels opened with the presentation of the report of committee B on standard specifications for cast iron and finished castings by Walter Wood. The report was brief, the committee having discovered no reasons for changing the specifications of the past.

Dr. Richard Moldenke, chairman of committee J on standard specifications for foundry coke reported that a general change in the character of the coke trade rendered desirable a corresponding change in the name and scope of the committee. The old designations of 72-hour and 48-hour coke could no longer be considered descriptive. The advent of by-product coke of comparatively good quality and made in much shorter time also disturbed the old standards. The disturbances in the coal and coke fields during the past year had given by-product coke an opportunity and it had proved satisfactory under conditions formerly considered unfavorable. The committee requested that its name be changed to "Committee J on Standard Specifications for Coke."

The report of committee M on standard specifications for staybolts contained a suggestion in regard to the piling of the iron.

Paul Kreuzpointner in the report of committee O on uniform speed in commercial testing gave the results of some 437 tests made in different laboratories mostly connected with technical universities. There was considerable variation in testing the same material at the same speed which was ascribed to the variable personal equation of operators. The elastic limit also varied greatly, the test being peculiarly subject to error. The flow of metal was found to be very uniform under all speeds. The committee recommended the adoption of a speed of three inches for a two-inch test piece and that the elastic limit be taken at a slow speed. This slow speed was not definitely decided but was taken to be about ½ to ¾ inch.

J. P. Snow doubted the value of the elastic limit test, and said that the speed was much too slow for commercial purposes.

Prof. Marburg suggested that if the speed were increased after the yield point had been passed it would not retard the process very much.

In reply to an inquiry Mr. Kreuzpointner said the committee intended to take up the matter of speed as applied to the testing of iron, but personally he did not think that its effect could be very different from that upon steel.

J. A. Kinkead, chairman of committee T, on the tempering and testing of steel springs, reported progress. He described some of the difficulties encountered in testing car and locomotive springs and pointed out some of the faults of the present methods.

The report of committee R, E. D. Meier, chairman, was read by title, as were also a number of papers.

F. R. McKibben described a series of tension tests of steel angles made at the Massachusetts Institute of Technology. Twenty-seven pieces were tested and the results tabulated.

Last Session, Saturday Afternoon.

F. S. Hancock reported progress in the experiments undertaken at Purdue University to determine the effect of combined stresses on the elastic properties of iron and steel. The results were shown in tabular form and were supplementary to those presented a year ago. The results obtained with tubes were analogous to those obtained with solid rounds.

E. W. Knight gave the history of a number of costly mistakes made in waterproofing and suggested the methods by which they might have been avoided.

Prof. Lanza, chairman of committee K, on standard methods of testing, announced that a list of questions had been prepared and sent to different testing laboratories with a view to securing information.

W. C. DuComb, Jr., read a description of two large testing machines recently constructed by the Riehle Co. The largest, a 600,000 pound machine built for the University of Illinois, was fitted with a needle beam which showed a deflection under load for forty pounds. The screws, 32 feet long and 5½ in. in diameter, have a thread 28 feet long, cut by one of the shops of the Niles-Bement-Pond Co. This thread showed not the slightest imperfection. To dissipate the severe recoil of this machine it is fitted with fluid friction cylinders. The second machine is of 400,000 pounds capacity and is in use by the Republic Iron & Steel Co., the Carnegie Steel Co., and others.

The question of representation at the meeting of the International society in Brussels next September and of providing a new committee on chains and chain iron and steel were referred to the executive committee.

Upon motion of James Christie it was decided to prepare and present to Dr. and Mrs. Dudley the felicitations of the society, suitably engrossed.

Russell & Erwin Mfg. Co.—Officers of the Russell & Erwin Mfg. Co. of New Britain, Conn., have organized a new corporation, known as the Russell & Erwin Mfg. Co. of New York, to conduct the sales department and warehouses of the parent firm in New York. All of the $50,000 capital stock will be held by the American Hardware Corporation, the parent company. The charter for the new company was granted by the secretary of state at Albany, N. Y., on June 4 upon application of H. S. Hart, D. A. Hawley, Isaac D. Russell and others. The organization meeting held on June 8 in the offices at 47 Chambers street, New York, resulted in the election of the following officers and directors: Howard S. Hart, president; B. A. Hawley, first vice president; Isaac D. Russell, second vice president; J. H. Van Newkirk, treasurer; William H. Donaldson, assistant treasurer; William A. Cherry, secretary, and Charles C. Haselton, assistant secretary. Directors—Howard S. Hart, B. A. Hawley and Isaac D. Russell, all of New Britain, and J. H. Van Newkirk, William H. Donaldson, William A. Cherry, Oliver P. Malone, George E. Moore, Charles C. Haselton, William Brown and William E. Diehl, all of New York.

THE IRON AND STEEL INSTITUTE AND THE AMERICAN INSTITUTE OF MINING ENGINEERS.

The Iron and Steel Institute, instead of holding a meeting abroad or in the provinces this year, will meet in London jointly with the American Institute of Mining Engineers. The meeting will commence on Tuesday, July 24, and will continue two days. The Lord Mayor, of London, will act as chairman of the London reception committee. The following papers have been prepared.

"Machine Molding" by P. Bouvillain, Paris; "Tempering and Cutting Tests of High-Speed Tool Steels" by Dr. H. C. H. Carpenter, Manchester; "The Nodulizing and Desulphurization of Fine Iron Ores" by A. Ladd Colby, New York; "Belgian Practice in Large Gas Engines" by Professor H. Hubert, of Liege; "Electric Steel Smelting" by E. C. Ibbotson, Sheffield; "Different Methods of Blast Furnace Refrigeration and their Power Requirements" by J. E. Johnson Jr., Longdale, Va.; "The Crystallography of Iron" by F. Osmond, Paris; "German Practice in Large Gas Engines" by K. Reinhart, Dortmund; "The Development of the Roe Puddling Process" by James P. Roe, Pottstown, Pa.; "The Constitution of Iron Carbon Alloys" by Albert Sauveur, Cambridge, Mass.; "The Influence of Silicon and Graphite on the Open-Hearth Process" by A. S. Thomas, of Cardiff; "British Practice in Large Gas Engines" by Tom Westgarth, Middlesbrough.

In addition to the above papers, an exclusively American list has been prepared, consisting of the following four papers:

"Comparison of American and European Rail Specifications" by A. Ladd Colby, New York; "Piping and Segregation of Steel Ingots" by H. M. Howe, New York; "The Effect of Low Temperature on the Recovery of Steel from Overstrain" by E. J. McCaustland, Ithaca, N. Y.; "Improvements in Rolling Iron and Steel" by James E. York, New York.

On the morning of July 24 there will be held a general meeting of the Iron and Steel Institute, with excursions in the afternoon. On the morning of Wednesday there will be a meeting of the American Institute of Mining Engineers followed by visits to the various works in the afternoon. On the third day there will be a joint meeting of the two societies. The American visitors will be admitted to the first day's meeting and the members of the Iron and Steel Institute will be invited to attend the meeting of the American society on the second day.

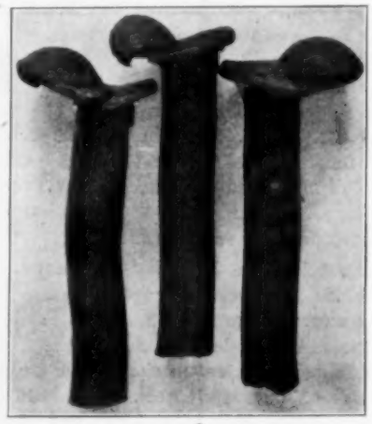
The following works are to be visited on Tuesday, July 24: The National Physical Laboratory at Teddington, the London County Council's Electricity Generating Station at Greenwich, and the Hall of the Company of Armorers and Braziers.

On Wednesday, July 25, the visits will be to the works of Messrs. J. I. Thornycroft & Co., Chiswick; the works of Messrs. J. & G. Hall, Dartford, and the Temple and Inns of Court. On Thursday, July 26, the works of Messrs. Fraser & Chalmers at Erith, the works of the Associated Portland Cement Manufacturers at Northfleet, the power station of the Underground Electric Railway Co., at Chelsea, and the hall of the Ironmongers' Co. will be visited. On Friday, July 27, an excursion to Windsor is planned followed by a banquet in the evening in the Guildhall. On Saturday, July 28, there will be alternative visits to the blast furnaces of Thomas Butler & Co., Wellingborough, and to the Dover Harbor Works.

On the evening of Tuesday, July 24, the Lord Mayor, of London, will tender a reception at the Mansion House. On the evening of July 27 there will be a fireworks display at the Crystal Palace. The following week excursions, confined to the members of the American Institute of Mining Engineers will be organized to the principal iron districts, including a trip to Wales.

DEFECTIVE RIVETS.

The accompanying illustration of defective rivets, which were cut from the



EXAMPLES OF BAD RIVETING.

fire-door ring of a new boiler appeared in a recent issue of *The Monthly Bulletin* of the Fidelity & Casualty Co. The rivet heads were so badly set away from the center line that it is doubtful if the joint would have held water. These rivets bear testimony to the necessity of rigid inspection for all work of this character, as in this instance, these three defective rivets caused the rejection of the entire boiler.

PENNSYLVANIA AS A PRODUCING STATE.

It is an old story that Pennsylvania has long been prominent as the leader of all the states in the mining of coal, the manufacture of coke, and the production of iron and steel, says the *Bulletin*, of the American Iron and Steel Association. Its leadership in these great industries in 1904 was well maintained, as will be seen by the following table, which gives its percentage of the total production of coal and coke and of various leading forms of iron and steel in the whole country in that year, as follows: coal, 48.5 per cent; coke, 62.9 per cent; pig iron, 46.3 per cent; all kinds of steel, 56.5 per cent; steel rails, 35.9 per cent; structural iron and steel, 87.3 per cent. Pennsylvania has not been a large producer of iron ore since the rich iron ores of the Lake Superior region came into general use in the manufacture of Bessemer pig iron about 1880. Its small production in 1904 is included in the table. And yet Pennsylvania was first of all the states in the mining of iron ore for more than a century down to and including the census year of 1880. In 1889 it fell to third place and in 1904 to the ninth place among the iron-ore producing states. The record for the above products for 1904, in gross tons, with the exception of coke, which is in net tons, is as follows:

Products	Prod'n. in U. S.	Prod'n. in Pa.	Pa.'s per ct.
Coal, all kinds	314,562,881	152,775,871	48.5
Coke	23,621,520	14,861,064	62.9
Iron ore	27,644,330	397,107	1.4
Pig iron	16,497,033	7,644,321	46.3
Steel, all kinds	13,859,887	7,835,097	56.5
Steel rails	2,283,840	822,108	35.9
Structurals	949,146	829,167	87.3

Of the production of coal in Pennsylvania in the year mentioned in the table 65,318,490 tons were anthracite and 87,457,381 tons were bituminous; the total was 152,775,871 tons, or 48.5 per cent of the country's production, as above stated. Of the production of coke in 1904 nearly 63 per cent, as is shown above, was produced in Pennsylvania. Pennsylvania's prominence as a coal and coke producer is not so generally recognized as its prominence in the production of iron and steel. Practically all the bituminous coal and coke produced in Pensylvania is to be credited to western Pennsylvania. As is well known virtually all the anthracite produced in the United States is mined in eastern Pennsylvania.

The production of Portland cement in 1905, according to the United States Geological Survey, was 35,246,812 barrels valued at $33,245,867, against 26,505,881 barrels valued at $23,355,119 in 1904.

LAKE SUPERIOR IRON NEWS.

(Special Correspondence.)

Norway, Mich., June 25.—The United States Steel Corporation's proposed establishment at Gary, Ind., of what will be the world's greatest steel plant is a development considered of much importance to the Menominee and Marquette iron ranges. Obviously, it is pointed out, they being much the nearest sources of ore supply, the two fields will be called upon to furnish a greater tonnage of raw material than were the big company to confine its operations to its present manufacturing centers. This increase in allotment is estimated at several millions of tons annually, and the great bulk of it doubtless will be forwarded from Escanaba, the only ore shipping port on Lake Michigan, at the foot of which the proposed great steel center is to be located.

A comparison of distances from the various ore shipping ports of the Lake Superior region shows that on shipments from Escanaba a haul of approximately 1,000 miles would be saved. This means that, with the Gary works in commission, much of the Steel Corporation ore now forwarded from Marquette would be diverted to Escanaba and shipped from that port, the tonnage retained by the old route being that consigned to Lake Erie. Escanaba is already one of the largest ore shipping ports on the lakes—it ranking third last season, being exceeded by only Duluth and Two Harbors—but even now it is prepared to handle a considerably larger tonnage. The Chicago & Northwestern railroad has five ore docks at the Lake Michigan port at the present time. Combined, these piers have 1,232 pockets of an aggregate storage capacity of 188,290 tons. The Chicago, Milwaukee & St. Paul railroad has one big dock in commission—its 240 storage pockets have a capacity of 50,400 tons—and another, now practically completed, will be ready to receive ore in a week or two. This latter pier is one of the very best and largest in the region and will enable the company to handle ore much more expeditiously. Both the Northwestern and the St. Paul roads extend to the Marquette range—the former to the Ishpeming and Negaunee field, and the latter to the Champion and Republic districts—and on the Menominee they share in the traffic.

It is at Escanaba that is located the big central crushing plant of the Steel Corporation, designed to treat hard ore from both the Marquette and Menominee fields, reducing it to furnace size before it is loaded into the boats. This plant is of large capacity, and there has yet been no occasion to place it in full operation.

In connection with the establishment of mills at Gary, there has been revived the scheme of building a ship canal across the Michigan peninsula, connecting Lakes Superior and Michigan at the head of Little Bay de Noc. It is argued that a large proportion of Mesabi range ores will be required in addition to the Michigan product, and that as some hundreds of miles could be saved on the round trip from the head of Lake Superior, the Steel Corporation could be expected to lend financial support to the suggested canal undertaking.

However, little stock is taken in the mining country in the proposed waterway scheme. It is true that the distance across the peninsula is only about forty miles, but there is an elevation of 200 feet above the level of Lake Superior. There is not water enough to supply locks, and therefore the canal would have to be dug at least twenty feet below the level of Lake Superior, making a total cut of 220 feet at the most elevated point. The cut for several miles in the vicinity of what are known as Au Train falls would have to be made through solid rock, and with an excavation of 220 feet at the summit and twenty feet at each end the average depth of the cut would be 120 feet. The proposed route is the lowest and shortest between the two lakes. The waterway could be built, of course—nothing is impossible to the American engineer—but the cost would be so stupendous that it is not at all likely the Steel Corporation would venture into the proposition.

It is more probable that the big company, now that it is enlarging its steel-making operations at the foot of Lake Michigan, will make a bid for John R. Walsh's Wisconsin & Michigan railroad. This line extends from Peshtigo, Wis., to Norway and Quinnesec, on the Menominee iron range, and prior to the recent banking failure in Chicago which involved its owner it was understood that it contemplated important extensions, even to the head of Lake Superior. From Peshtigo, Lake Michigan, is operated a ferry line to South Chicago, thus making it possible to ship ore direct from the mine shaft to the furnace door if deemed preferable to the construction of an ore dock system at the lake shore. The Steel Corporation annually ships a considerable tonnage from the Menominee range—last year 1,570,433 tons, compared with 1,497,722 from the Marquette—and as for the Gary needs it will draw more heavily from the field, the purchase of the Wisconsin & Michigan might be a wise investment. The proposition is certainly much more meritorious than the visionary plan of connecting Lakes Superior and Michigan by ship canal.

Will Build Model "Drys."

The Cleveland Cliffs Iron Co. has awarded contracts for the erection of two modern "drys," or changing houses, for the miners employed at the Maas and Princeton mines. The structures will be similar in equipment and design to that recently built at the lake shaft of the Cleveland mine at Ishpeming. They will be of the same material as this latter dry, and that at the Maas will be of the same dimensions. This will be 206 feet in length, by thirty in width, and will be a solid brick structure, resting on a foundation of stone and concrete. It will be divided into three large compartments by solid brick walls. That at one end will be a mess room for the men; the middle compartment will be fitted up as a changing room and will be equipped along the walls on three sides with lockers constructed of sheet steel, in which the miners will keep their street clothing, and with racks along the center on which to hang their digging garments. Off from this room will be the wash room, which, besides containing the usual wash troughs and tubs for removing the stains of grease and iron ore, will be lined at one side with a row of hot and cold water shower baths. Two small rooms adjoining this at the end of the building will be fitted up, one as an office for the mining captains and the other as an emergency hospital, or rather as a place in which injured men can be cared for prior to the arrival of the ambulance. The dry at the Princeton will be an exact counterpart of that at the Maas and Cleveland Lake except that it will not be as long, its length being 135 feet.

The big new hoisting plant recently installed at the Cleveland Cliffs Co.'s Cliffs Shafts mine at Ishpeming is giving excellent satisfaction. It is of considerably greater capacity than the machinery it has superseded, and a larger force will now be employed underground. Places are open for 100 or more men, although as miners are scarce it will likely be some weeks before the number required can be secured.

Concentrating Plant Razed.

The work of demolishing the big building in which was housed the old Negaunee Concentrating Works has been completed, and the plant which its promoters expected would revolutionize the method of treating ore has become but a memory. In theory, the scheme was a beautiful one, but in prac-

tice the invention was a dismal failure, the hard jasper rock wearing out the rolls as fast as they could be put in, and after something like $400,000 had been sunk by the New York syndicate interested, the project was abandoned. The machinery was long ago removed. The building fell into the hands of the Cleveland Cliffs Co. last year when the holdings of the old Jackson Co., were taken over. Something like 350,000 feet of good lumber were taken from the structure, besides much lumber which will be serviceable for blocking and other purposes about the mines.

The Lake Superior & Ishpeming railway, an ore road owned jointly by the Cleveland Cliffs and Jones & Laughlin companies, and which extends from their mines at Ishpeming and Negaunee to the ore dock of the two corporations at North Marquette, has adopted the policy of retiring its wooden cars. It has added 250 steel cars to its equipment within the past two years, and has 700 more under construction at Pittsburg. Like those already in service, these are of 100,000 pounds capacity. They will be delivered at Marquette some time during the summer.

Contrary to expectations, mining operations have not yet been resumed at the Steel Corporation's Champion mine at Beacon, west of Ishpeming. The property has been idle the past two and one-half years, and it was recently decided to reopen it. However, needed parts of machinery have been delayed in arriving, and until they put in an appearance and are installed in place nothing can be done. At its Section 16 mine at Ishpeming, the company is preparing for the erection of a new boiler house. A new battery of boilers will be installed here, and that now in commission will be shipped to the Tilden mine, on the Gogebic range.

Some New Developments.

Pickands, Mather & Co., are to open another new mine in the Iron county portion of the Menominee range. This will be done at the L. A. DeGrasse property in Spring valley. Exploration has been in progress here with a diamond drill the past few months, and the developments have been so flattering that a fifty-year lease has been taken to the tract and preparations are making to sink a shaft. In Dickinson county, John T. Spencer, of Iron Mountain, has made what is considered a highly important find of ore at his exploration between East Vulcan and the Sturgeon River farm. The ore runs from 50 to 60 per cent in metallic iron, with a very low phosphorus content. It has been found in virgin territory, and the opinion is expressed that the lens is certain to prove a large and valuable one. The Florence Iron River Co. has three diamond drills in commission in the vicinity of its Florence mine, in Florence county, Wis. Outcroppings of ore are well defined for three or four miles northwest of the mine, and important discoveries are anticipated. There has been some shallow test-pitting there, but no serious work such as is now going on. A large number of properties have been optioned in this territory during the past few months.

Governor Frank W. Higgins, of New York, has been on the Mesabi range during the week, attending the annual meetings of six companies in which he is interested. He is president of two of these corporations, the Higgins Land and Guaranty Land companies, and is a director in each of the other four. Two of these latter operate in the west, the Wilson River Lumber company in Oregon, and the Olean Land company in Washington. The Higgins Land Co. has extensive holdings on the Mesabi, and among other properties owns 1,600 acres in town 58-16 that is under lease to the United States Steel Corporation.

New Republic Office.

Announcement is made that the Republic Iron & Steel Co. has decided to establish general offices at Duluth, and will open them shortly after the first of the coming month. Theron H. Cornell, who for several years past has been chief bookkeeper in the offices of the Cambria and Lillie mines, Republic properties at Negaunee, has been promoted to the position of chief auditor of all the mines of the company in the Lake Superior region, with headquarters at Duluth. A. G. Benson, a graduate of the Michigan College of Mines, has resigned his position as mining engineer for the Republic company at Negaunee, and has taken a similar post with the newly organized Rhodes Mining Co., a Mesabi range corporation of which Alexander Maitland, lieutenant governor of Michigan and formerly in charge of the Republic Iron & Steel Co.'s properties, is general manager.

The Northern Traction company, which proposes to connect the principal Mesabi range towns with an electric railway system, plans to build fifteen miles of the road this season. The first connection will be between Hibbing and Chisholm. The project of the company contemplates a line from Nashwauk to Buhl, which would give service to all the larger towns and a score of mining locations.

STUDY OF AMERICAN IRON ORE.

As exploration and deep drilling have progressed on the Lake Superior iron ranges to a point where the resources of that region are practically determined, interest has shifted to other iron districts of the United States. Having made detailed reports on each of the Lake Superior ranges, members of the United States Geological Survey are now taking up work on the other promising iron ranges of the country.

Edwin C. Eckel, who has been placed in charge of the Survey's investigation of the iron ores of the United States, has just returned from Birmingham, Ala., where E. F. Burchard has commenced detailed mapping of the red and brown ores of that important district. The gray hematites of Talladega county, Ala., of considerable local interest, have been carefully examined by P. S. Smith. Reports on the iron ores of Alabama will probably be published by the survey in the course of the present year.

Work will be taken up on the iron deposits of Tennessee. It is also expected that the mapping of the Virginia iron ores, which was commenced last year by Mr. Eckel, can be completed in 1906.

Arthur C. Spencer is preparing a detailed report on the magnetic deposits of New Jersey, which have thus far been prospected and worked in an exceedingly haphazard manner. It is probable that Mr. Eckel will report on the ores of the Adirondacks and the New York highlands during the present field season.

In the west, work on various iron ore districts in Wyoming, Colorado, Utah, New Mexico and Washington is in prospect. It is planned to carry on this work, as funds permit, until practically all the important or promising iron ore regions of the United States have been examined and mapped in detail.

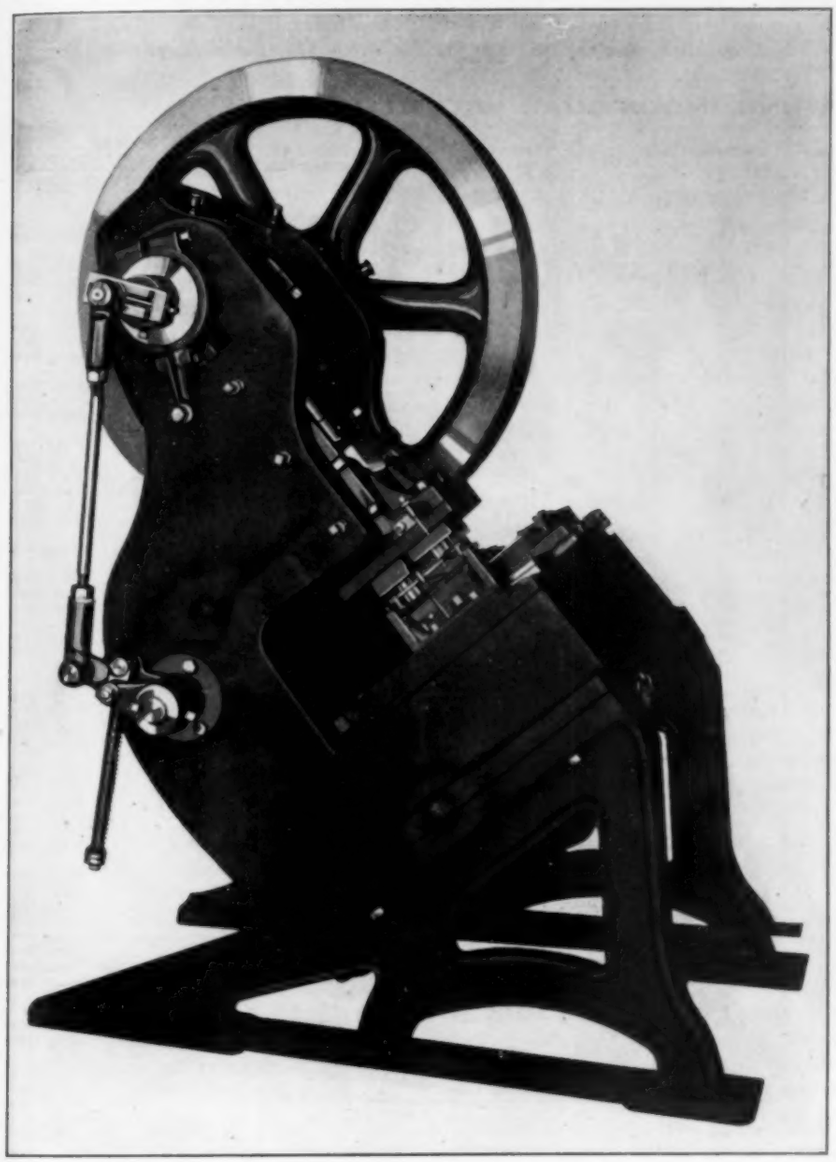
Crushing Plant For Isthmus.—The Allis-Chalmers Co. has designed and supplied the machinery for a complete rock crushing plant on order of the Isthmian Canal Commission through Manning, Maxwell & Moore, Inc., New York. The plant will be employed in crushing trap rock used in ballasting the tracks of the Panama railroad and the Culebra Cut railroad and also for the making of concrete and the laying of street pavements. The French made jaw-crushers were found to be incapable of turning out any large quantity of material. The plant will be located at

Pedro Miguel, near the Panama end of the Culebra Cut. Brick work on the canal zone is very expensive from the excessive cost of both brick and skilled labor. Concrete will, therefore, be in great demand. The present chief engineer's policy is to follow out the lines of American railroad construction as far as possible, using heavy locomotives, cars, rails and ballasted tracks. This crushing plant will, undoubtedly be one of the most important single factors in the development of this work, and will be taxed to its utmost capacity for the next few years. The crushing plant and accessories were built at Chicago Works No. 1, of the Allis-Chalmers Co.

The bill granting the federal charter to the Ohio & Erie Ship Canal Co., has passed the senate at a vote of 41 to 11.

BLISS AUTOMATIC POWER PRESS.

The accompanying illustration shows a Bliss inclined power press with an automatic slide feed and ejector with two dies for blanking and stamping. This press is adapted for stamping articles out of thin sheet metal. The blanking die is set in front of the stamping die, and as the press is set on inclined legs, the cut blank naturally drops back by gravity. A cam actuated feed is provided, however, to insure the blank being properly located on the stamping die from which after being stamped, it is automatically ejected by a device not shown in the illustration.



BLISS AUTOMATIC POWER PRESS.

Articles may be cut from the strip and stamped or embossed at a rate of from 50 to 60 pieces per minute. The press will do the work of at least two ordinary power hand fed presses.

Some of the principal dimensions of the machine are as follows:

Opening in bed, front to back	14½	inches.
Opening in bed, right to left	22½	inches.
Width between uprights	16	inches.
Depth of throat	10	inches.
Distance from bed to slide	9¼	inches.
Distance from bed to top of throat	11	inches.
Adjustment of slide	2	inches.
Area of top of bolster plate	20 x 30	inches.
Height to center of shaft	69	inches.
Weight of fly wheel	750	pounds.
Total weight	4,800	pounds.

This press is built by the E. W. Bliss Co., 8 Adams street, Brooklyn, N. Y.

THE FAIRBANKS-MORSE MFG. CO.'S SPECIAL APPRENTICESHIP COURSE.

The Fairbanks-Morse Co., Beloit, Wis., has recently established a special apprenticeship course for graduates of technical schools, in order to develop material from which to draw for positions of importance in the various departments of its service. The length of the course is two years, of 2,750 hours each, which is divided into two parts, approximately one year each.

During the first part the student is transferred from place to place, and from one department of the shop to another, and during the second period, the student is apprenticed in some particular branch of the service.

Upon the completion of the course, the apprentice is expected to have prepared himself for filling a position satisfactorily in some department of the company's regular service.

The apprentices are paid at the following rates:

For the first 1,375 service hours 15 cents per hour.

For the second 1,375 service hours, 18 cents per hour.

For the second 2,750 service hours, 22 cents per hour.

At the end of the entire term of service, for the faithful performance of his duties throughout the course, each apprentice is to be paid a bonus of $50.00, which is to be reduced pro rata for apprentices who may be permitted to shorten their course, in order to be taken earlier into the company's regular service. The apprentices will be subject to all shop and office rules, the same as regular employes.

Corporations Clear.—In sustaining a motion to quash an indictment recently returned against the Colorado Fuel & Iron Co. and the Colorado Supply Co., charging them with violation of the law bearing upon the "truck" system, District Judge Dixon held that a corporation cannot enter into a conspiracy of committing a crime. He held that the indictment was fatally deficient and that it failed to state the connection that certain officials had with the company's name.

Increased Dividends Reflect Prosperity.

The general prosperity of industrial concerns was reflected during the past week in the declaration of the initial quarterly dividend of 1¼ per cent on the common stock of the American Locomotive Co., and its effect upon the entire industrial list was marked. The present period of activity has been taken advantage of to resume payments of which started dividends at the time of their organization and suspended or reduced payments during the depressing period of 1904, have resumed within the last year and a half. The placing in Paris of the $50,000,000 loan of the Pennsylvania, the increase of the dividend rate of the Baltimore & Ohio common stock to 6 per cent, and the breaking up of the southern pig iron agreement were the leading market features of the week.

THE LEADING INDUSTRIAL SECURITIES.

	Closing Quo. June 16	Closing Quotation June 23	Changes	Date of 1906 Ann. Meet.	Par Value	Capital Outstanding	Dividend Basis	Dividend Being Paid	Dividend Date Last Div. Dec.
Allis-Chalmers Co.	21	21	.....	Sept.	100	19,820,000	.....	.....	.....
Allis-Chalmers preferred	57	56¼	— ¾		100	16,150,000	7 cum	.....	Feb., 1904
American Can	7¼	6⅞	— ⅜	Apr. 24	100	41,233,300			.....
American Can preferred	60⅝	56⅝	—3⅛		100	41,233,300	7 cum	5 Q.	July, 1906
American Car and Foundry	38½	38½	.....	June 28	100	30,000,000	.....	.....	May, 1905
AmericanCar and Foundry preferred	100	100¾	+ ¾		100	30,000,000	7 n. c.	7 Q.	July, 1906
American Locomotive	69⅝	69	— ⅝	Oct. 16	100	25,000,000		1¾	July, 1906
American Locomotive preferred	115	115	.....		100	24,100,000	7 cum	7 Q.	July, 1906
American Shipbuilding	62	64	+2	Oct. 2	100	7,600,000	4	4 Q.	Apr., 1906
American Shipbuilding preferred	107	106	—1		100	7,900,000	7 n. c.	7 Q.	Apr., 1906
American Steel Foundries	11⅝	11¼	— ¼	Oct. 3	100	17,700,000	.....	.....	.....
American Steel Foundries preferred	45½	45	— ½		100	17,700,000	6 cum	.....	Aug., 1905
Barney & Smith	65	65	.....	June 5	100	1,000,000	.....	.....	June, 1894
Barney & Smith preferred	140	140	.....		100	2,500,000	8 cum	8 Q.	June 1906
Bethlehem Steel	28¾	27	—1¾	April 3	100	15,000,000	.....	.....	.....
Bethlehem Steel preferred	87	88	+1		100	15,000,000	7 n. c.	7 Q.	May, 1906
Bullock Electric preferred	111	111	.....	Oct. 2	100	1,000,000	6	6 Q.	July, 1906
Cambria Steel	36	35½	— ½	March 20	50	45,000,000	8	7 Q.	Mar., 1906
Cambria Iron	49½	49½	.....		50	8,468,000	4	4 S. A.	Apr., 1906
Colorado Fuel & Iron	51¼	50¼	—1	Oct. 15	100	30,132,000	7	.....	Apr., 1902
Wm. Cramp & Sons Ship & Eng. Bldg. Co.	22	18	—4	May 31	100	6,098,000	5	.....	Nov., 1902
Crucible Steel	12⅝	12	— ⅝	Oct. 17	100	25,000,000	.....	.....	.....
Crucible Steel preferred	77½	77	— ½		100	25,000,000	7 cum	.....	June, 1906
Empire Steel	5	5	.....	Feb. 28	100	2,281,400	.....	.....	.....
Empire Steel preferred	36	35	—1		100	2,500,000	6 cum	3 S. A.	July, 1906
Fay & Egan	93½	93½	.....	Feb. 20	100	1,000,000	6	6 Q.	May, 1906
Fay & Egan preferred	128½	128½	.....		100	1,000,000	7 cum	7 Q.	May, 1906
General Electric	166	165¾	— ¼	May 8	100	48,256,050	8	8 Q.	July, 1906
International Pump	51	48¾	—2⅛	June 5	100	12,202,500		2	July, 1905
International Pump preferred	85½	86¾	+ ¾		100	8,850,000	6 cum	6 Q.	May, 1906
Lackawanna Steel	71	71	.....	March 14	100	34,971,400	.....	.....	.....
Lake Superior Corporation	19½	19	— ½	Oct. 3	100	40,000,000	.....	.....	.....
Niles-Bement-Pond	130	130	.....	Feb. 7	100	5,000,000	6	6 Q.	May, 1906
Niles-Bement-Pond preferred	105	105	.....		100	2,000,000	6 cum	6 Q.	June, 1906
Otis Elevator Co	48	49	+1	March 19	100	6,350,300		2 A.	Apr., 1906
Otis Elevator Co. preferred	98	100	+2		100	5,589,500	6 n. c.	6 Q.	July, 1906
Pittsburg Coal Co	13⅝	14	+ ⅜	Feb. 12	100	30,135,000	.....	.....	.....
Pittsburg Coal preferred	54	52⅞	—1⅛		100	30,716,200	7	.....	Apr., 1905
Pressed Steel Car	49	49	.....	Feb. 21	100	12,500,000	3		Aug., 1904
Pressed Steel Car preferred	98	97½	— ½		100	12,500,000	7 n. c.	7 Q.	May, 1906
Pullman Palace Car	226	229¾	+3¾	Oct. 18	100	74,000,000		8 Q.	May, 1906
Railway Steel Spring	51½	52	+ ½	March 1	100	13,500,000		4 S. A.	Oct., 1905
Railway Steel Spring preferred	101	101	.....		100	13,500,000	7 cum	7 Q.	June, 1906
Republic Iron & Steel	29½	28	—1½	Oct. 17	100	27,352,000	.....	.....	.....
Republic Iron & Steel preferred	98⅞	97⅛	—1¾		100	20,852,000	7 cum	7 Q.	Apr., 1906
Sloss-Sheffield	75	72½	—2½	March 14	100	7,500,000	5	5	Jan., 1906
Sloss-Sheffield preferred	108	106½	—1½		100	6,700,000	7 n. c.	7 Q.	July, 1906
Tennessee Coal & Iron	154¾	154⅜	—1	May 15	100	22,552,800		4 Q.	Aug., 1906
U. S. Cast Iron Pipe & Foundry	50	49	— ¼	June 27	100	12,500,000		2	June, 1906
U. S. Cast Iron Pipe & Foundry preferred	92¼	94⅜	—2⅛		100	12,500,000	7 n. c.	7	June, 1906
U. S. Steel	38½	36⅞	—1⅝	April 16	100	508,302,500			Dec., 1903
U. S. Steel preferred	104¼	103⅝	— ⅝		100	360,281,100	7 cum	7 Q.	May, 1906
U. S. Steel 5's	97½	96⅞	— ⅝		100	463,798,000	5	5 A.	
Virginia Iron, Coal & Coke	43	45	+2	Sept. 18	100	8,641,600	.....	.....	.....
Westinghouse Electric	156	158	+2	June 27	50	20,996,350	10	10 Q.	Apr., 1906
Westinghouse Air Brake	149	151	+2	Oct. 2	50	10,990,450	20	20 Q.	July, 1906

dividends by a number of steel and equipment companies, which were forced to drop or reduce disbursements during the slump of 1903-4. The Republic Iron & Steel Co., which reduced its preferred dividends early in 1904, resumed them last year and is now paying off the accumulation. The Bethlehem Steel Co. started dividends on its preferred shares last year. The Crucible Steel and the Chicago Pneumatic Tool companies have resumed dividends on preferred, and during 1905 Tennessee Coal & Iron began paying 1 per cent quarterly. In all about 25 per cent of the industrial interests,

The general level of prices continued with little change and moderate activity prevailed, total sales of the week being 5,392,950 shares. In the iron, steel and manufacturing line American Locomotive, Colorado Fuel & Iron and United States Steel were dealt in most largely. Steel corporation issues continued heavy in spite of vigorous denials that the industry is receding and the well established fact that developments in the southern field had at least no immediate bearing on the northern situation and especially upon the business of the Corporation.

FINANCIAL NOTES.

Recent dividend declarations include the following: Montreal Steel Co., semi-annual, 2½ per cent on common; Central Coal & Coke, regular quarterly, 1¾ per cent on preferred and 1½ per cent on common, payable June 16; American Locomotive Co., quarterly, 1¾ per cent on preferred and 1¼ per cent on common; Great Lakes Towing Co., regular quarterly, 1¾ per cent, payable July 1; Union Switch & Signal Co., regular quarterly, 2½ per cent on preferred and 2 per cent on common, payable July 10; American Nut & Bolt Fastener Co., regular quarterly, 5 per cent, payable June 14.

Applications have been made for the listing on the New York Stock Exchange of $9,409,000 first mortgage bonds of 1932 by the Republic Iron & Steel Co.

A bond issue of $12,000,000 at 5 per cent in connection with contemplated extensions of the Allis-Chalmers Co., will, according to report, soon be submitted to stockholders.

NEWS FROM MANY INDUSTRIES.

New Buyers:—

The Maumee Brass & Machine Co., Toledo, O., has been incorporated with a capitalization of $50,000 by Porter Paddock, C. D. Mackie, Charles Fox, Arthur E. Rawley and V. C. Lamb.

The Swain Engine Co., Chicago, has been organized with a capitalization of $20,000 to manufacture machinery. The incorporators are: Charles M. Swain, George A. Swain and Walter D. Hawk.

The Trans-Niagara Bridge Co., Ottawa, Ont., has been incorporated with a capitalization of $1,000,000 to build a bridge across the Niagara river north of the upper steel arch bridge at Niagara Falls. The incorporators are: Frederic Nicholls, Sir Henry Heliett, H. G. Nicholls, E. R. Wood and Allan H. Boyce, of Toronto.

The Monarch Valve & Mfg. Co., Springfield, Mass., has been incorporated with a capitalization of $75,000 to manufacture the Monarch valve and appliances. The officers are: Charles J. Roadstrand, president; J. W. Superneaw, vice president; Stuart M. Robson, treasurer, and H. E. Jodin, clerk.

The Hottman Boiler Co., Dubuque, Ia., has been incorporated with a capitalization of $25,000. J. F. Hottman is general manager.

The Cline Automatic Casting Machine Co., Chicago, Ill., has been organized with a capitalization of $100,000 by Fred N. Cline, A. G. Thompson and Charles Greve.

The Chicago Foundry Co., Chicago, has been incorporated with a capital stock of $20,000 by A. A. Burns, M. T. Ash and E. E. Mower.

The Western Mfg. & Supply Co., Oakland, Cal., has been organized with a capitalization of $25,000 to carry on a general foundry, manufacturing and machinery business. The incorporators are: James Normand, Marfa, Texas, Montroyd Sharp, H. C. Anderson and G. H. Normand, of Santa Cruz, and James H. Todd, of Berkeley.

The Saxon Machine Co. has been incorporated with a capital stock of $50,000 to manufacture and deal in machinery. The incorporators are: President, Frederick S. Wylie, 173 Cabot Square, Holyoke, Mass.; treasurer, James H. Wylie, 58 Nonotuck street, Holyoke, Mass.; clerk, George M. Faulkner, 71 Chestnut street, Cambridge, Mass.

The Elba Iron Works, Beverly, N. J., has been incorporated to carry on engineering and construction work. The capital stock is $50,000, and the incorporators are: Albert E. Eager, Andrew H. Haig, Frank P. Johnson, William W. Hodgson and Charles A. Gillingham, all of the address given.

The Clark Conveyor Co. incorporated with a capital stock of $100,000 will manufacture machinery, tools, etc. The incorporators are: Karl A. A. Staahlgren and David A. Sheehan, 114 Liberty street and Henry Frohwitter, 11 Chambers street, all of New York.

Charles J. Bogue Electric Co. has been incorporated with a capital stock of $50,000 to manufacture electric machinery, etc. The incorporators are: Charles J. Bogue, Leo Robertson and Falconbridge Plante, 213 Center street, New York.

The Madison Williams Mfg. Co., Ltd., Lindsay, Ont., has been incorporated with a capitalization of $75,000 by Madison Williams, Wm. M. Flavelle, Herbert J. Lytle, John Carew and Thomas Stewart.

The Empire Mfg. Co., Ltd., London, Ont., has been organized with a capitalization of $100,000 to manufacture plumbers' and engineers' supplies. The incorporators are: Thomas A. Stevens, George Trudell, George M. Reid, Charles H. Ivey, James C. Duffield, Williams M. Gartshore and John O'D. Dromgole.

The W. E. Dillon Co., Ltd., Toronto, Ont., has been incorporated with a capital stock of $40,000 to manufacture metal and sheet metal goods. The incorporators are: Wm. E. Dillon, Daniel Batiste and Thomas Frampton.

The Monteith-Nixon, Ltd., Toronto, Ont., has been incorporated with a capitalization of $50,000 to manufacture windmills, wind engines, heel tanks, etc. The incorporators are: Frederick W. Monteith, Robert B. Nixon, William S. Monteith, M. M. Monteith and Winnifred S. Nixon.

New Construction:—

The Colorado Gray Iron Foundry Co., Denver, Col., is shortly to erect a plant consisting of a foundry building 110 x 250 feet, a pattern shop and storage building and a power plant. Equipment will consist of the following: One 20-ton four-motor, one five-ton three motor, and two two-ton three-motor electric traveling cranes, one locomotive crane of five tons capacity, two cupolas, one about 96 inches in diameter, and the other 60 inches, two blowers of 63 and 25 cubic feet per minute capacity, one belt-driven air compressor with a capacity of 150 cubic feet per minute, elevators and all other necessary equipment. The foundry output will be about 100 tons daily at the start. F. S. McNamara is general manager.

The Hyrum A. Silver Foundry & Machine Co., Salt Lake City, Utah, has its foundry department all ready for operation, and will complete its machine shop department within a month. Foundry and machine work will be done with a specialty of breakdown and automobile repairing.

The Sterling Emery Wheel Co., Tiffin, O., manufacturing emery wheels and grinding machinery, is shortly to install a considerable amount of new equipment calculated to increase its capacity about 50 per cent. A new 150-horsepower engine with electric generator is to be added and all machinery will be electrically driven.

The Crawford Locomotive & Car Works, Streator, Ill., has acquired a tract of ten acres on the Santa Fe in that city for its plant. The first shop to be erected will be of mill construction 100 x 250 feet for building and repairing steel and wood freight cars, mine and lumber cars, with a wood working mill at one side 50 x 100 feet, and a structural iron and blacksmith shop on the opposite side 84 x 126 feet. Equipment will be in place and this shop will be ready for operation by the middle of September. It is planned to begin the building of new freight cars about Jan. 1, with a capacity of 20 per day. Additional shops will be erected later for the manufacture of passenger coaches and street cars and for the rebuilding of locomotives and the manufacture of railway equipment. About 18 months will be required for the completion of the entire shops.

The Shelbyville Foundry & Machine Co., Shelbyville, Ind., is to erect an addition to its plant for the manufacture of gas engines.

The South Side Steel & Malleable Casting Co., Milwaukee, Wis., recently incorporated, has secured a tract of 4½ acres and will expend about $40,000 in the erection of a plant for making malleable castings.

The Titusville Forge Co., Titusville, Pa., has its new structural steel machine shop which is 80 x 180 feet, practically completed. The machinery is now being installed.

The F. J. Stokes Machine Co., Philadelphia, is to erect a brick machine shop and an office building.

The Deere & Mansur Co., Moline, Ill., has awarded the contract to Gust Ed & Sons for a foundry building 60 x 490 feet.

The Colorado Fuel & Iron Co. has practically completed the extensions to its rail mill at Bessemer, near Pueblo, Col., and has the foundations in for a new calcining plant and for a number of new furnaces in the open-hearth department.

James & Moore, Seattle, Wash., are having plans prepared by Walter Kennedy, of Pittsburg, for a blast furnace 80 feet high and 18 feet across at the boshes.

P. E. Donner, located in the Frick building annex, Pittsburg, is having plans prepared for an open-hearth steel plant of about 12 50-ton furnaces, a blooming mill, a combination mill and a continuous sheet mill, which he and his associates are to erect in the Pittsburg district. Mr. Donner was formerly general manager of the American Sheet & Tin Plate Co.'s works, at Monessen, Pa.

The Refined Iron & Steel Co. has work well advanced on its new iron mill at Anderson Road, on the P. & L. E., near Pittsburg. When completed the plant will consist of ten double puddling furnaces and will have a daily capacity of about 50 tons.

The West Latrobe Foundry & Machine Co. is to rebuild its plant at Latrobe, Pa., recently destroyed by fire, on a larger scale.

The Solvay Foundry Co., recently organized at Syracuse, N. Y., with a capitalization of $100,000, is to erect a large foundry on a tract of land at Solvay, where it will manufacture malleable iron castings.

The Republic Iron & Steel Co. has let the contract for a new building at the Sylvan plant, Moline, Ill., to replace that destroyed by fire last April. Other minor improvements will be made.

The Baltimore & Ohio railroad has begun extensive construction at Chicago Junction, O., erecting a round house to accommodate 25 engines, a machine shop and other structures.

The Kokomo Steel & Wire Co., Kokomo, Ind., it is reported, is to install a billet mill.

The W. P. Davis Machine Co., Rochester, N. Y., has prepared plans for a machine shop 140 x 152 feet to cost $24,000.

The Van Dorn & Dutton Co., Cleveland, O., manufacturer of gears and pinions, is erecting a two-story steel and reinforced concrete structure, one wing of which is 70 x 160 feet and the other 70 x 80 feet. The machinery equipment of the plant will be doubled.

The United Engineering & Foundry Co. is enlarging its capacity at the Lincoln department, which is the largest chilled and sand roll foundry in the country.

The American Iron & Steel Mfg. Co. is planning a large office building for its Lebanon plant. It will be 70 x 150 feet.

A new blacksmith shop which will add to the working force of the N. & W. at the Portsmouth, O., terminals, is now in course of construction. A coach shop will also be added.

The Keystone Wagon Works, of Reading, Pa., has increased its capital from $400,000 to $600,000 and will build automobile bodies. An addition to the works will be built.

Schillinger Bros., of Chicago, have been awarded the contract for two new buildings for the Portsmouth, O., Stove and Range Works, recently destroyed by fire. The buildings will be three and five stories and the approximate cost is to be $65,000.

General Industrial Notes:—

The plant of the Republic Iron & Steel Co., located at Ridgely, near Springfield, Ill., is to be dismantled and shipped to East Chicago, Ind. It has been idle for some time, though only a few years ago it was modernized at considerable cost.

The Kearney & Trecker Co., Milwaukee, recently incorporated, takes over the business heretofore carried on by the partnership of Kearney & Trecker, manufacturing milling machinery. The capital stock continues in the same hands as heretofore.

The National Tube Co. has purchased a strip of land in Upper Benwood, W. Va., lying immediately north of blast furnace B. The tract was practically surrounded by other properties of the company.

The sale of the Diamond State Steel Co.'s plant, Wilmington, Del., has been ordered by federal court authorities.

The Norton Iron Works, Ashland, Ky., has resumed operations after a long idleness in which very extensive repairs were made. Its output is mostly consumed by the Ashland steel plant.

The Atlanta Tin Plate Mill, Noblesville, Ind., has been sold by receiver C. A. Ford to John McKee, of Indianapolis, as trustee for $59,750, the appraised value. The new company, it is stated, will complete and operate the plant.

The Boston Pressed Steel Co., Worcester, Mass., recently organized, succeeds to the business of the Eastern Stamping Co., which will be relocated at 170-173 Union street.

The McClintic-Marshall Construction Co., Pittsburg, has acquired by purchase the plant of the American Structural Steel Co., of Carnegie, Pa. The plant covers about 11 acres and the consideration was about $200,000. This purchase increases the annual output of the McClintic-Marshall Co. to 150,000 tons of finished steel for bridge building work.

The American Aluminum Coating Co., in which Geo. W. Delamater of Pittsburg is interested, has taken a lease on the plant of the Steel & Iron Aluminum Coating Co., South Connellsville, Pa., and will manufacture sheets, pipe and fittings coated with aluminum.

The Norfolk & Western has made a satisfactory settlement with the Ohio Iron & Coal Co., which claimed title to the site of the abandoned plant of the Republic Iron & Steel Co., at Ironton, O., and will use it for trackage purposes.

The Ashland Iron & Mining Co., at Ashland, Ky., has about completed the installation of two new hot-blast stoves at its Nos. 1 and 2 furnaces. Several Youngstown mechanics at work on the additions were badly injured recently by the fall of a scaffolding.

The Central Iron & Steel Co. will blow in its No. 2 furnace this fall when the hot metal railway from its Paxton furnaces to the new open-hearth steel plant in South Harrisburg, Pa., is completed.

President Smink, of the Reading Iron Co., has denied the report that his company is after the properties of the Pottstown Iron Co.

The Youngstown Sheet & Tube Co., of Youngstown, O., has opened an office at 2420 Farmers Bank building, Pittsburg, in charge of Mr. E. S. Rooney.

The E. & G. Brooke Iron Co. is dismantling its No. 1 furnace at Birdsboro, Pa. The stack was built in 1853 and was run regularly for many years, being in its time quite a noted producer.

Ground has been broken through the south cross cut into lean ore at the Dayight mine, an Oglebay, Norton & Co. property. The ore runs about 25 per cent in iron and prospects look good for better quality. It is an old mine located in the S. half S. E. quarter Sec. 31-46-2 E. in Wisconsin.

Trade Notes:—

The Barney & Smith Car Co., Dayton, O., will build ten dining cars for the Northern Pacific. It is completing an order for 500 steel cars for the Delaware and Lackawanna.

The Atlantic & Birmingham Construction Co. will build 1,100 box cars, 300 flats, 25 coaches and 16 freight and passenger engines for the Atlanta, Birmingham & Atlantic Railroad Co.

John F. Allen, New York, shipped to Manila, P. I., three large Allen riveters of 72-inch reach for the Atlantic Gulf & Pacific Co., which has a pipe work contract there. This shipment is one-half of the order and the balance will go forward in a short time. The machines will average about five rivets per minute.

The Crocker-Wheeler Co., Ampere, N. J., has sold the Pusey & Jones Co., Wilmington, Del., 33 motors of from one to 35 horsepower for driving ship building machinery. The National Enameling & Stamping Co., Wilmington, Del., has bought one 300-kilowatt, 250-volt generator to furnish power for its stamping machinery.

The Ironton Engine Co. is filling an order for three of its engines for the Peebles Paving Brick Co., of Portsmouth.